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**PRINCIPAL CONTENTS**

**The Statistical Assessment of British Agriculture**  
by **J. T. COPPOCK**

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**Rhosili Open Field and Related South Wales Field Patterns**  
by **MARGARET DAVIES**

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**The Development of Feeding Standards for Livestock**  
by **CYRIL TYLER**

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**Estate Management in Eighteenth-Century Kent**  
by **G. E. MINGAY**

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# THE Agricultural History Review

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Vol. IV Part II

Edited by H. P. R. FINBERG

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# The Statistical Assessment of British Agriculture

By J. T. COPPOCK

(Continued from page 21)

## EVALUATION OF THE RETURNS

THE returns have continued to expand in scope and complexity but their importance for the agricultural historian does not derive primarily either from their more recent developments or from the hazards of the experiments from which they originated, but from their value as source material for the reconstruction of past agriculture. It is a paradox that the more abundant is the source material the less highly is it regarded. The very abundance and continuity of the agricultural statistics reveal weaknesses and deficiencies which might not be apparent in a more limited body of evidence. Analysis of these will tend to over-emphasize the limitations of the data, but it must be remembered that many of these limitations are common to all such statistical data. The following examination of the returns may help to throw light on the worth of other sources such as the 1801 Crop Returns.

From statistical data of this kind, an answer is required to three questions: how accurate and complete are the data? how comparable is the information given in different years? what light does it throw on the agricultural changes taking place? Some answer will be attempted to each of these questions, though emphasis will be placed on the first and second. But one caveat must first be entered. The purpose for which the statistics were collected was neither the regional analysis of agriculture nor the study of regional changes in land use; it was to obtain national figures from which estimates of agricultural produce might be made, and which would indicate trends in the production of different agricultural commodities. Most of the limitations to be discussed apply to these national totals; but they apply more forcibly to the figures for smaller areas, which were produced, not as ends in themselves, but incidentally in the collection of the national totals. In a country such as Britain, with its great variety of natural conditions, in which relief, soil, and climate show considerable contrasts within a small area, attention must necessarily be focused on these small administrative units, the parish and the county; yet figures for these areas are least reliable and most difficult to interpret.

## ACCURACY AND COMPLETENESS OF THE RETURNS

It is clear from the preceding summary of the evolution of the statistics that the figures for the first few years of collection must be treated with the



greatest caution. Opposition was still marked, the procedure was unfamiliar to both officials and farmers, and differences of interpretation by farmers were frequent. Official opinion regarded the period from 1868 to 1872 as too short to indicate reliably even the changes in the total area of cultivated land, but it was later felt that averages for the period 1871 to 1875 did provide a sound basis for comparison with later periods.<sup>1</sup> None the less, in each year from 1867 to 1891 the total acreage returned increased, the cumulative increase being more than four million acres. Part of this increase was due to changes in the basis of collection, but the greater part was due both to more accurate returns and to the expansion of the cultivated area by the improvement of hitherto uncultivated land.

The abolition of a minimum size of holding must have made a substantial contribution to the increase of more than a million acres from 1866 to 1867. Subsequent changes were less important; the alteration in the minimum size of holding from a quarter to over one acre was estimated to have reduced the returned acreage by not more than one-tenth per cent, while the adoption of the quarter-acre minimum and the change in the date of collection must have had very little effect. But the great contrasts in the livestock figures for 1866 and 1867 are clearly due in part to the change in the date of collection from 5 March to 25 June.<sup>2</sup> Changes in the acreage returns have also been caused by the alteration in the definition of land which could properly be included in the returns, but as these are closely bound up with the distinction between permanent grass and rough grazing, discussion will be deferred. Though the effects of these changes in the basis of collection have not always been numerically large, they do affect the comparability of the figures from year to year.

The annual reports which accompany the statistics do not apportion the remainder of the increase in the total acreage among the various causes; but their emphasis suggests that in the first fifteen years both increasing accuracy and land improvement were making important contributions, while for the following ten years the bulk of the increase was due to reclamation. Reports of new enclosure and improvement repeatedly refer to these activities in the "hilly districts," and it is clear that the scope for the extension of the cultivated area in Lowland Britain was limited.<sup>3</sup> Yet both Highland and Lowland

<sup>1</sup> *Agricultural Returns of Great Britain, 1872* (C675), p. 7; *Agricultural Statistics, 1905* (C3061), p. x.

<sup>2</sup> *Agricultural Returns, 1892* (C6743), p. vii; 1877 (C1878), p. 3; 1867 (C3941), p. 4.

<sup>3</sup> The terms Highland and Lowland describe a fundamental twofold division of Britain, widely accepted by geographers and archaeologists, the boundary line being conventionally drawn from the mouth of the Tees to that of the Exe.

show the same trend of rising acreage in the early years, although the rate of increase was slower and the period of rising totals shorter in the south and east than in the north and west; thus, in Oxfordshire, the acreage rose until 1880 at an average rate of increase of  $\frac{3}{4}$  per cent per annum, while in Cornwall the acreage continued to rise until 1918, at an average rate of  $1\frac{1}{2}$  per cent per annum.<sup>1</sup> Similar trends are observable in the livestock returns, but the figures fluctuate more widely, as might be expected, and show a steady increase only in the first ten years. These facts confirm the impression that most of the earlier increase was due to more effective collection.

The progressive improvement in the accuracy of the returns must largely be the result of more complete enumeration. The Rate Books, on which great dependence had been placed in the compilation of parish lists of occupiers, seem to have been far from reliable guides, and many holdings or parts of holdings were at first omitted.<sup>2</sup> Such omissions were sometimes revealed on a change of tenancy, but the problem of achieving complete enumeration is one which has continued to cause concern.<sup>3</sup> Even as late as 1938, 13,302 acres could be shown to be omitted from the returns of Buckinghamshire, while in 1941 some 250,000 acres were added to the total for England and Wales by the discovery of holdings which had previously escaped enumeration.<sup>4</sup> The completeness and accuracy of the livestock figures are much more difficult to check than those for the acreage returns. Some observers believed that livestock grazing on moorland were being omitted because the land on which they were grazing was not, until 1892, returnable; confirmation of this was given by a ruling that such stock should properly be included in the returns.<sup>5</sup>

Other sources of greater accuracy in the acreage returns were the detection of the use of local measurements, and the extension of the large-scale survey of the Ordnance Survey. Numerous references occur to the use of local, particularly Scottish, Cheshire, and Lancashire acres in lieu of statute acres; corrections seem to have been made before the publication of the county figures, but errors of this kind must inevitably have entered into earlier

<sup>1</sup> While the scope for greater accuracy in Highland Britain was diminished by the absence of opposition, this gain is probably more than offset by unintentional errors and omissions.

<sup>2</sup> Not only holdings or parts of holdings were omitted, but also parishes or parts of parishes. Excise General Order, 8 May 1876, gives warning of this, and states that "numerous errors have been discovered in recent years."

<sup>3</sup> *Agricultural Returns of Great Britain*, 1885 (C4537), p. 4.

<sup>4</sup> E. Thomas and C. E. Elms, *An Economic Survey of Buckinghamshire Agriculture*, Part I, 1938, p. 11; and *Agriculture*, LVI, 1949, p. 234.

<sup>5</sup> *Parliamentary Debates*, CXCVII, 1869, p. 830; Excise General Letter 244, 5 July 1872.

totals.<sup>1</sup> Before the completion of the 25-inch survey there must often have been ignorance on the part of both landlord and tenant as to the exact acreage of holdings and fields, particularly in those areas in which no Tithe Survey had been made.<sup>2</sup>

Inaccuracies also arose from the introduction of new items. Increases in the acreages of such items are often noted in the first few years for which returns were collected, but these increases are probably due to progressive improvements in the accuracy with which the returns were made, rather than to actual increases in the extent of land under such crops. While such changes do not usually affect the total acreage of crops and grass or the total number of any kind of livestock, they do modify the sub-totals. It is not possible to document most of these changes, but two examples, where the collection of new items had to be abandoned because of the poor response, will indicate what happened in extreme cases. In 1884 an attempt was made to collect numbers of poultry, but opposition was so strong and the results so suspect that it was abandoned after three years; similarly an attempt in 1885 to obtain the numbers of livestock born in the year of the return brought replies from only 220,980 out of the 509,186 occupiers to whom schedules were sent.<sup>3</sup> The farmers were said to regard the requests as inquisitorial, and to be unable to comply in any case, since they kept no records. New items were continually being added, and old subdivided; after each change there was a period of adjustment, and the figures for the first few years in which new items were collected must be treated with considerable circumspection.

The decreasing proportion of estimates must also be borne in mind in considering the accuracy of the returns; estimates became both less necessary, as the fears and hostility of farmers gradually diminished, and more accurate as the officers became more experienced in making them. While a soundly based estimate was preferable to an unreliable or wilfully erroneous return, it is reasonable to suppose that returns were more accurate than estimates, especially in the case of livestock figures. The increasing accuracy of the estimates and the decrease in the number of estimates necessary thus both

<sup>1</sup> See, among others, *Agricultural Returns of Great Britain*, 1878 (C2133), p. 3, and 1889 (C5856), p. 4.

<sup>2</sup> An example of this may be found in L. L. Price, 'The Recent Depression in Agriculture, as shown in the accounts of an Oxford College 1876-1890', *Journal of the Royal Statistical Society of London*, LV, 1892, p. 7: "In the interval between 1876 and 1890 additional exactitude in the measurements contained in the various estates was secured, in a large degree in consequence of the publication of the sheets of the Ordnance Survey." See also *Agricultural Returns*, 1885 (C4537), p. 4.

<sup>3</sup> *Agricultural Returns*, 1885 (C4537), pp. 14, 76-7; and *Agricultural Returns of Great Britain*, 1886 (C4847), p. 19.

made for greater accuracy in the returns, and the method laid down for making estimates would seem to have precluded the possibility of any gross errors.

#### CHANGES IN FARM, PARISH, AND COUNTY BOUNDARIES

While these observations are relevant to national, county, and parish figures, it is clear that the smaller the area, the greater their importance. Furthermore, in the smaller administrative units the effects of improving accuracy and more exhaustive enumeration are complicated by changes which are due to the procedure adopted in the compilation of the parish, and to a lesser extent the county, totals. Examination of these totals shows that they may vary considerably from year to year, sometimes showing increases and sometimes decreases; such changes, which are quite haphazard in their occurrence, are largely due, not to changes in the extent of land cultivated or of crops grown or in the numbers of livestock kept, but to transfer of farms from the summary of one parish to that of another.<sup>1</sup>

Such transfers are primarily the result of changes in farm boundaries and in the boundaries of parish and county, but their effects are accentuated by the differing procedures adopted. The instructions given to officers in 1866 are quite explicit, but they do not always seem to have been followed; furthermore, in an attempt to overcome the prejudices of farmers against making returns, considerable latitude in their interpretation was allowed. Officers had been instructed that where separate farms in two or more parishes were occupied, separate returns were to be made for each farm; but later it was said that every effort was made "to save trouble to the occupiers by allowing them to make one or more Returns as they please," and that much latitude had always been permitted "with respect to the custom of returning separate farms or detached portions."<sup>2</sup> As a result, in addition to the changes which would have occurred in any case through the alteration of farm boundaries, quite arbitrary changes in county and parish totals arose from the whim of occupiers, who one year returned their land in this parish and another in that. It was also noted that some occupiers made returns in the county in which they resided "instead of for that in which the land is situate."<sup>3</sup> In 1885 an apparent diminution of about 16,000 acres in the acreage returned for the East Riding of Yorkshire was explained as the result of casual interchanges of this kind with the West Riding;<sup>4</sup> while, to quote a parish example, in

<sup>1</sup> See J. T. Coppock, 'The relationship of farm and parish boundaries—a study in the use of agricultural statistics', *Geographical Studies*, 1, 1955, pp. 12–26.

<sup>2</sup> *Agricultural Returns of Great Britain*, 1879 (C2407), p. 2, and 1892 (C6743), p. vii.

<sup>3</sup> *Agricultural Returns of Great Britain*, 1883 (C3907), p. 3, and 1884 (C4142), p. 3.

<sup>4</sup> *Agricultural Returns*, 1885 (C4537), p. 1.

1891 154 acres were transferred from the parish of Towersey (Bucks) to that of Emmington (Oxon) because an occupier holding land in both counties refused to make two returns.<sup>1</sup> Officers were instructed to ensure that returns were always made in the same county, but parish totals continue to show marked variations, some of which are due to changes of this kind.<sup>2</sup>

The interpretation of the parish figures is not assisted by the numerous changes in parish boundaries; such changes were particularly numerous when much of the fragmentation which characterized the ancient parishes was eliminated by the Divided Parishes Acts from 1876 to 1882.<sup>3</sup> Many other changes were associated with the creation of the present machinery of local government; thus, of the 14,926 Civil Parishes of which the populations were given in the Census returns for 1881, no fewer than 3,258 had their boundaries altered in the course of the next decade.<sup>4</sup> Comparison of parish figures before and after these dates is, therefore, difficult, particularly since it is not possible, as in the case of the decennial censuses, to adjust the parish returns to make allowances for these boundary changes. Nor can anything be done to adjust the parish totals to take account of the far more numerous, and unrecorded, changes in farm boundaries.

The interpretation of the parish summaries is not facilitated by the uncertainty which prevailed about the sense in which the term 'parish' should be used. In southern England, in particular, many small townships and hamlets of a few hundred acres were treated as separate parishes; thus, in 1866, the township of Little Haseley and the hamlets of Latchford and Rycote, all lying in the Oxfordshire parish of Great Haseley, were separately returned. This practice was particularly widespread in the first few years for which returns were collected, and since it is in general very difficult to ascertain the boundaries of these small areas, even greater uncertainty prevails about the land to which the returns refer. In 1886 officers were instructed that no township was to be returned as a separate parish which did not exceed 2,500 acres, and that only those parishes exceeding 5,000 acres which were already divided for Tax, Poor Rate, or other purposes, could be divided into two parts.<sup>5</sup> Nevertheless some small townships continued to be returned

<sup>1</sup> Manuscript comment by Collector on Parish Summaries, Oxford County, Oxford Collection, 1891.

<sup>2</sup> Excise General Order, 20 March 1895.

<sup>3</sup> These detached portions present particular difficulty, since it is not possible to ascertain whether the land in them was returned in their parent parish or in adjacent parishes, though some detached portions were returned separately where they lay in a different collection from their parent parish. However, the acreages involved are small and can generally be disregarded.

<sup>4</sup> *Census of England and Wales, 1891, General Report* (C7222), p. 2.

<sup>5</sup> Excise General Order, 12 April 1886.



separately; thus the hamlet of Dagnall in the Buckinghamshire parish of Edlesborough was returned until 1934.

#### DIFFERENCES OF INTERPRETATION BY FARMERS

The reliability and comparability of the statistics do not only depend on the accuracy and completeness with which the returns were made. Equally relevant are differences in the way in which various items in the returns were interpreted by the farmers in different parts of the country. These differences affect both the total acreages returned and the apportionment of those acreages between different crops, and, to a lesser extent, the number of livestock and their subdivision into various age classes of stock. These differences arose primarily from difficulties in defining the crops and livestock in such a way that they would mean the same thing to farmers in all parts of Britain. Differences of interpretation were most common between 1866 and 1871, but they also occurred whenever crops or stock were returned for the first time, when established definitions were changed, or when existing items were subdivided. Apart from the effects of different agricultural practices in different parts of the country, it was only to be expected with the large numbers of both farmers and collecting officers that uniformity of procedure and interpretation would be difficult to achieve.<sup>1</sup>

The chief sources of difficulty were the distinctions between permanent grass and rough grazing and between permanent and temporary grass. Uniformity of interpretation is of great importance in both cases, for the boundary between cultivated and uncultivated land is determined by the former, and that between arable and permanent grass by the latter.

The distinction between permanent pasture, to be included in the returns, and rough grazing, was most difficult in Highland Britain, where open moorland was extensive, and in those parts of Lowland Britain, particularly the chalk country of Berkshire, Hampshire, and Wiltshire, where there were large areas of unfenced downland. The problem of definition had immediately to be faced. In 1866 permanent pasture had been defined as "Permanent pasture, meadow or grass not broken up in the rotation (exclusive of hill pastures)"; it had been intended to exclude only "Mountain Land with heathy and scanty pasture," but it was believed that a large acreage of down and other hilly pasture was being omitted from the Returns. The definition was accordingly changed in 1867 to read "Permanent Grass as meadow, down, or pasture, not broken up in the rotation (exclusive of heath or mountain land)"; this change was followed in that year by a considerable increase in the acreage returned under permanent grass in many counties, e.g. 62,873

<sup>1</sup> *Agricultural Returns of Great Britain*, 1869 (C4200), p. 4; and 1870 (C223), p. 4.



acres in Wiltshire and 143,022 in Carmarthen.<sup>1</sup> The problem of definition continued to present difficulties, however, and in 1876 officers were instructed that "enclosed Grass Land, not common to two or more Occupiers having grazing rights, must be entered as Permanent Grass," but that "unenclosed mountain land or heaths not capable of cultivation" should be excluded.<sup>2</sup> Despite this clarification, difficulties continued to be encountered; thus, in 1889, a decrease of some 2,200 acres in the acreage returned for Haddington and one of 2,400 acres in that for Orkney were found on investigation to be due to the exclusion of land previously returned as permanent pasture, but which was more properly regarded as heath and mountain land. In 1890, on the other hand, an increase in the national acreage of permanent grass was attributed in part to a more liberal use of the term 'cultivated'.<sup>3</sup>

In 1891 estimates were made of the extent of such heath or mountain land used for feeding stock, and from 1892 onwards the acreage of Mountain and Heath land was collected annually. Some of this land was common land, and officers were instructed that if the occupier could not give the acreage of such land they were to make an estimate of its approximate acreage.<sup>4</sup> This collection of the acreage of uncultivated land led to further changes in the acreage returned under permanent pasture in some upland counties; thus, between 1891 and 1892 it fell by 40,671 acres in Westmorland and by 56,611 acres in Cumberland. Reclassification of land formerly returned as permanent grass continued to affect the totals of both cultivated and uncultivated land; in 1897 much rough downland in Hampshire, Sussex, and Wiltshire was reclassified in this way, and in 1898 the Collector responsible for Wiltshire reported that "Down Pasture" was increasingly being returned as mountain and heath land. The weather also affected the extent of land returned in this category; in 1901 an increase in Mountain and Heath land in Hampshire was attributed to transfer from permanent pasture of land which "afforded no pasturage in consequence of the drought in Spring." So numerous were these interchanges that it was concluded in 1907 that no close analysis of these figures was possible.<sup>5</sup>

The distinction between permanent and temporary grass was equally difficult to define, and the difficulty was accentuated by the progressive con-

<sup>1</sup> *Agricultural Returns*, 1867 (C3941), p. 3.

<sup>2</sup> Excise General Order, 8 May 1876. In 1895 it was further ruled that such heath and mountain land should be excluded, even though it were enclosed by boundary fences.—Excise General Order, 20 March 1895.

<sup>3</sup> *Agricultural Returns*, 1889 (C5856), p. 4; and 1890 (C6143), p. xi.

<sup>4</sup> Excise General Order, 20 April 1892.

<sup>5</sup> *Agricultural Returns for Great Britain*, 1897 (C8897), p. xi; 1898 (C9304), p. viii; 1901 (C1121), p. ix; and *Agricultural Statistics*, 1907, XLIII, Part I (C3870), p. 7.

version from arable to grass which was taking place during the last two decades of the nineteenth century, and possibly even during the seventies.<sup>1</sup> In fact, of the addition of 3,999,000 acres to the acreage of permanent pasture between 1871 and 1891, approximately one half was attributed to the laying down of arable to grass; detailed analysis is, however, made difficult by the lack of uniform interpretation by farmers.<sup>2</sup> In 1866 temporary grass had been defined as "clover and artificial and other grasses under rotation"; differences of interpretation led to the adoption in 1869 of a new definition, "Clover, Sainfoin, 'Seeds' and Rye Grass under Rotation." This change was followed by a decrease of 510,000 acres in the acreage returned as temporary grass, though part of this was attributed to the dry summer of 1868. But it was found that this new definition had led in many areas to the return as temporary grass only of one-year leys, all other rotation grass being returned as permanent pasture. A third definition, "Clover, Sainfoin, 'Seeds', Rye and other grasses under rotation for one or more years," was therefore adopted in 1870, and a transfer from permanent to temporary grass ensued. Unfortunately, it had also been decided in that year to distinguish between the acreage of grass cut for hay and that not cut, and this added further confusion; some farmers returned land which was supporting a corn crop undersown with seeds both as corn and as seeds, though it should not have been returned under the latter head until the following year. By 1871 greater uniformity of interpretation was thought to prevail, but further difficulties were noted in 1876 and in 1883, while in 1885 a special enquiry found that the clover acreage had been overstated. The simplified schedule adopted in 1897 led, on the other hand, to an increase in the acreage returned as temporary grass.<sup>3</sup>

The problem of uniform interpretation was most acute in those areas where leys of two, three, or more years were common. The difficulty of classifying such leys was increased by the effects of the agricultural depression. One Collector, whose territory lay in the south and west of England, and in the midlands, reported that a large proportion of the increase in permanent pasture consisted of temporary grass, which would normally have been ploughed up after one or two years, but because of the unprofitability of arable farming had "simply drifted into Permanent Pasture." A similar

<sup>1</sup> This difficulty was noted by many writers: see, for example, *Royal Commission on Agriculture, England, Report of Mr R. Hunter Pringle (Assistant Commissioner) on the Counties of Bedford, Huntingdon, and Northampton*.—House of Commons, Sessional Papers, 1895, xvii (C7842), p. 41: "I am aware that farmers in making their returns do not always distinguish between the two."

<sup>2</sup> *Agricultural Returns of Great Britain, 1891* (C6524), p. x.

<sup>3</sup> *Agricultural Returns, 1869* (C4200), pp. 4, 8; 1870 (C223), p. 10; 1871 (C460), p. 13; 1876 (C1635), p. 7; 1883 (C3907), p. 5; 1886 (C4847), p. 13; 1897 (C8897), pp. x-xi.

increase in permanent pasture in 1893, which was most marked in parts of Scotland and Wales, was likewise ascribed to the reclassification of land which up till then had been regarded as being in the rotation; for an increasing amount of temporary grass was coming to be regarded "in name as well as in fact as permanent."<sup>1</sup>

Mountain and heath land, permanent pasture, and temporary grass were not the only classes of land about which uncertainty prevailed, though they were by far the most important. Bare fallow was also a source of difficulty, and here too fluctuations due to the weather added to the uncertainty of the exact nature of changes revealed in the statistics. Variations in 1866 and 1867 were attributed to misconceptions about the land to be returned in this category, and in 1868 some land "capable of cultivation but lying waste or untilled" was believed to have been erroneously returned as bare fallow. Consequently the definition was altered in 1869 from "Bare Fallow or uncropped Arable Land" to "Bare Fallow or Ploughed land from which a Crop will not be taken this year"; this alteration was followed by a great decrease in the acreage of bare fallow, particularly in Devonshire. There was a further fall in 1870, especially in Devon and Cornwall, and again in 1871. The interpretation of bare fallow was also complicated by the agricultural depression; during the worst periods of depression some cultivated land was temporarily abandoned, and doubt existed whether this land should be returned as bare fallow. It was similarly debatable at what point arable land which had been allowed to tumble down to grass should cease to be returned as bare fallow, and be reclassified as permanent grass.<sup>2</sup>

While most other field crops seem to have presented little difficulty, the collection of the acreages of orchards, small fruit, market gardens, and woodlands was not without its hazards.<sup>3</sup> In the case of orchards and market gardens, the normal difficulties of interpretation were accentuated by the fact that such land was returned under more than one head; thus the land lying beneath orchard trees was returned under permanent grass, or under bare fallow, or the appropriate crop, while the land returned as market gardens was also returned under the separate crops growing on it.<sup>4</sup> Before the intro-

<sup>1</sup> *Agricultural Returns*, 1880 (2727), p. 5; 1885 (C4537), p. 9; 1886 (C4847), p. 14; 1893 (C7256), p. ix; 1896 (C8502), p. xvi.

<sup>2</sup> *Agricultural Returns*, 1867 (C3941), p. 4; 1868 (C4057), p. 5; 1869 (C4200), pp. 4, 8; 1870 (C223), p. 9; 1881 (C3078), p. 14; 1887 (C5187), p. 4.

<sup>3</sup> The principal difficulty here would have been the return of mixtures; I have been unable to find any ruling about mixed crops before 1912, when the instructions on the schedule prescribed that the acreage of mixed crops should be equally apportioned among the component crops.

<sup>4</sup> *Agricultural Returns*, 1897 (C8897), p. xvi.

duction of a separate category of small fruit there was no heading under which orchards or market gardens growing small fruit could be returned; it is probable, therefore, that the total acreages, as well as those under market gardens and orchards, were underestimated in this period. With this exception, it is theoretically true that inaccuracies in the acreage returned under the head of orchards and market gardens did not affect the total acreages, since such land had already been returned under other heads and was already included in the total. Clearly, however, the possibilities of confusion were considerable.

Market Gardens, which were first recorded in 1872, presented peculiar difficulties of definition, and were a source of much trouble; in 1883 a large acreage in Essex, occupied by peas and potatoes as part of a normal rotation, was erroneously returned as market garden. The increasing practice of growing vegetables on arable farms was making the old meaning of market garden obsolete, and in view of this and of the difficulties of interpretation which occupiers experienced, the collection of further returns under this head was discontinued.<sup>1</sup>

Orchards were first returned in 1871, but the collection of market garden acreages in the following year revealed that some land had been erroneously returned as orchards. Further confusion was noted in 1885, when part of the increased acreage of orchards was attributed to the proper return of orchards previously returned under the heading of permanent grass. In 1887 a further complication was introduced with the recording of the acreage of small fruit growing in orchards; in 1888 that growing in market gardens was also included, since the 1887 acreage only partially accounted for the land devoted to small fruit. It was clear that some land was being omitted, while other land was being erroneously returned under more than one head; thus, in 1888, a decrease of 3,056 acres in the orchard total was ascribed in part to land under small fruit being incorrectly returned as orchard the previous year. The new schedule in 1897 revealed numerous errors in the interpretation of small fruit, and in the measurement of small fruit areas lying within orchards and in market gardens, while in 1907 the return under separate heads of those orchards under grass and those undercropped with small fruit led to further improvement in the accuracy of the fruit acreages being returned.<sup>2</sup>

The acreage of woodland was collected in 1872, 1880, 1888, 1891, 1895, 1905, and 1913. Unlike the crop and livestock returns, the acreages were estimated by the officers on a parish basis and refer only to the woodland lying

<sup>1</sup> *Agricultural Returns*, 1884 (C4142), p. 7; 1897 (C8897), p. xvi.

<sup>2</sup> *Agricultural Returns*, 1872 (C675), p. 10; 1885 (C4537), p. 11; 1887 (C5187), p. 13; 1888 (C5493), p. 11; 1897 (C8897), p. xv; and *Agricultural Statistics*, 1907 (C3870), p. 15.

within the boundaries of each parish; the figures are, therefore, less ambiguous than the annual returns, but they are also less accurate, particularly in the years prior to 1891, when reliance was placed on the rate books. These, however, proved very defective guides, and the 1891 return was based on local enquiry by the officers and on Ordnance Survey measurements.<sup>1</sup> None of the figures is very reliable and they must therefore be used only with great caution.<sup>2</sup>

The livestock returns presented fewer difficulties of interpretation to the farmers. It is true that the number of horses returned in 1869 is not comparable with that collected between 1870 and 1911, since the latter excludes non-agricultural horses, and that some doubt exists how far the Milk Cows returned in 1866 are comparable with the Cows and Heifers in milk and in calf of 1867.<sup>3</sup> But these are isolated instances; the use of age limits to define the different classes of livestock minimized the possibility of differences of interpretation. Difficulties in drawing conclusions from the returns do not derive so much from differences in the interpretations made by farmers as from the effects of changing agricultural practice on the significance of fluctuations in the numbers of stock in particular age classes. Thus the trend towards the production of 'baby beef' tends to invalidate any conclusions that might be drawn from movements in the numbers of other cattle of two years and over about the rise or fall in beef production.<sup>4</sup>

Finally, it must be noted that changes in administrative policy and in the interpretations which were placed by farmers upon the instructions issued to them affect the conclusions which can be drawn from the statistics about trends in farm size. For while the number of holdings fluctuates and shows an increase in the numbers of small and medium-sized holdings and a decrease in the number of larger holdings of over 300 acres, independent observers noted that enlargement of farms through consolidation was widespread.<sup>5</sup> Sir Daniel Hall thought that farmers continued to return once separate holdings even after consolidation, while official sources attributed the variations in the numbers of holdings in different size groups to the varying practice of making one or several returns for holdings under the same ownership, as well as to more complete enumeration, and to the tendency for newly reclaimed land to be divided into small holdings.<sup>6</sup> Thus, while it is

<sup>1</sup> *Agricultural Returns*, 1891 (C6524), pp. vii-viii.

<sup>2</sup> *Ibid.*, pp. vii-viii.

<sup>3</sup> *Agricultural Returns*, 1870 (C223), pp. 11-12.

<sup>4</sup> Astor and Rowntree, *British Agriculture*, London, 1938, p. 45.

<sup>5</sup> See, for example, *Agricultural Statistics of England and Wales*, 1913, Acreage and Livestock Returns, XLVIII, Part I (C7325), pp. 9-10.

<sup>6</sup> A. D. Hall, *A Pilgrimage of British Farming*, London, 1938, p. 43.



usually possible to draw valid conclusions about regional differences in the size of holdings at any one time, comparisons from year to year are not justified.

#### CONCLUSION

Conclusions about the usefulness of the agricultural statistics must largely be based upon what is known of their origin and compilation, and upon their internal consistency. No other source exists with which full and valid comparisons can be made; the arable, grass, orchard, and market garden acreages can, however, be checked for some individual parishes against the areas given in the area books of the first 25-inch plans of the Ordnance Survey prior to the latter part of 1880, and in the altered Tithe Apportionments which are available for some parishes after 1865. Such comparisons involve laborious calculations, and since the figures are not strictly comparable, extensive checks are not justified, nor are they possible for more than small groups of parishes. Two examples must suffice to indicate the general reliability of the statistics. The parish of Great Missenden in Buckinghamshire was surveyed by the Ordnance Survey on the 25-inch scale in 1877; the computed acreages for arable, grass, and orchard are respectively 4,040, 1,039 $\frac{3}{4}$ , and 80 $\frac{1}{2}$ , while the agricultural returns give 3,975, 1,003, and 67 acres respectively, figures which, in view of the different basis of calculation, are remarkably consistent.<sup>1</sup> After the enclosure of Edlesborough parish in Buckinghamshire in 1875 an altered Tithe Apportionment was made in the same year, and this gave acreages for arable, grass, and orchard of 2,980, 1,231, and 43 $\frac{1}{2}$  respectively, compared with 3,806, 1,040, and 63 acres in the return;<sup>2</sup> these figures show much wider discrepancies than do those for Great Missenden, but it must be remembered that while the latter parish is compact, Edlesborough is an elongated parish which had recently been enclosed and had eight detached portions, all considerations which affect the comparability of the totals. These two parishes represent extremes; but they give some indication of the general reliability of the returns. It is not possible to compare crop acreages with other sources, but an official sample check found discrepancies between the actual extent and the returned acreages "only in rare instances."<sup>3</sup> No comparison of the livestock figures is possible. None the less, with the

<sup>1</sup> There are several possible totals for grass; I have included both the orchard acreage and the acreage of ornamental gardens, which are mainly landscaped parks.

<sup>2</sup> The Tithe Grass acreage includes 114 acres of Hudnall Common, which would be excluded from the Acreage Returns. The difference in orchard totals may also be due to the fact that the Tithe surveyors were primarily interested in the distinction between arable and grass, and did not always record orchards, or included them with gardens.

<sup>3</sup> R. J. Thompson, 'An Agricultural Census', *Journal of the Royal Statistical Society*, LXXXVIII, 1925, p. 188.



qualifications noted in the second part of this paper, both the internal consistency of the returns and the plausibility of the trends they reveal indicate their general reliability. It could hardly be expected that absolute accuracy or completeness would be attainable in view of the large number of occupiers of small acreages, and of the frequent changes taking place between holdings.<sup>1</sup> Discrepancies and inaccuracies do exist, so that it is rarely possible to compare total figures, even on a national basis. Ratios of different crops and densities of stocking, particularly where these are based on mean values for a number of years, provide the only safe basis for comparison, particularly when counties and parishes are being studied.<sup>2</sup> Comparisons from year to year can only be made with caution, in view of the changes of definition and of the different interpretations which have occurred; but while there are very few items which are strictly comparable throughout the period for which they have been collected, most crop and livestock figures are sufficiently comparable over long periods to be of great value.

The light which the Agricultural Statistics can throw on the agricultural changes taking place is, of course, limited by their accuracy and by the problems of interpretation which they involve, and by the fact that they reveal only average trends for groups of farms. It is unfortunate that opposition and apathy prevented the collection some twenty years earlier, for their grosser inaccuracies would then have been eliminated before the beginning of the period of agricultural depression. As it is, the illumination which they can provide on the great changes which were taking place at this most important moment in British agricultural history is diminished by the ambiguities and uncertainties of the first years of collection. But whatever their limitation, their value is greatly enhanced, both by the fact that they are unique and by the fact that the period for which they have been collected has been one of rapid and fundamental change. At no other period is it possible to examine in such detail for so wide an area and for so long a time the changes taking place on our farms, and if in this paper undue emphasis has been placed on the limitations of the returns, it is well to remember Clapham's caveat, that if the statistics cannot be trusted, there is nothing else that can.<sup>3</sup>

<sup>1</sup> Each year about 80,000 holdings show a change of acreage (*Agriculture, op. cit.*, p. 234).

<sup>2</sup> Coppock, *op. cit.*, pp. 21-2.

<sup>3</sup> J. H. Clapham, *Economic History of Modern Britain*, III, Cambridge, 1951, p. 86.

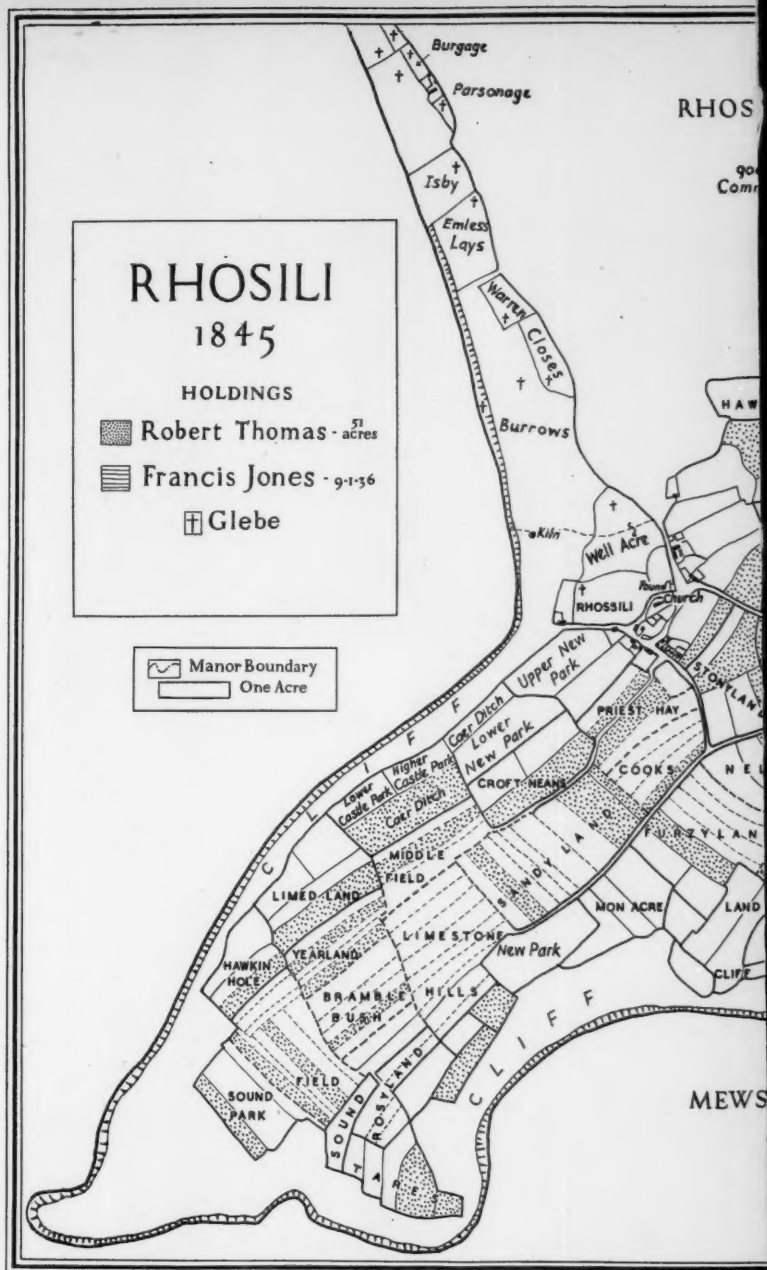
# Rhosili Open Field and Related South Wales Field Patterns

By MARGARET DAVIES

IN the manor of Rhosili there are two sharply contrasting types of land (Fig. 1). The northern half is occupied by Rhosili Down, a rounded mass of Devonian conglomerates and brownstones, partly strewn with boulder clay. The southern half, the land south of Rhosili and Middleton villages, is largely free from glacial drift and is covered with good loams underlain by Carboniferous limestone.

Rhosili Down rises sharply from a shelf of arable land (the drift-covered terrace along Rhosili Bay) to a rock-strewn ridge 600 feet high. Though this ridge falls away more gently eastward, slopes are still steep and Rhosili Down was and is pasture for sheep, horses, and cattle. The main area of the Down has never been enclosed; it is the common land of the manor of Rhosili and, as the remainder of the manor is largely arable, plays a vital part in its agriculture. The southern slopes of Rhosili Down are now enclosed; in the south-east, around Talgarth Well, the fields are small and they are grouped, two or three together, round small scattered houses. These have all the marks of squatters' holdings, encroachments made by stealth on the fringes of the common land. Larger and more regular fields, enclosed by the village farmers, lie behind Rhosili and Middleton villages on the southern slopes of the Down. These two villages, recently joined by a string of roadside houses, are distinct clusters of old farms. Their main arable holdings lie in the peninsula south-west of the villages, and until recently these two farm clusters housed all the tenants of the land there. The former squatters' holdings provided and still provide smallholdings for farm labourers having no share in the better land in the southern half of the manor. Here there are no scattered farms.

On the west and south Rhosili manor is bounded by the sea. An Elizabethan survey of 1598 defines the boundaries shown on Fig. 1 as "Beginning at a well called Tall-garth-Well and joining to the hedge of Owen Perkin's land called Freeland, and so as that leadeth southward to Elliot's Cross, from thence and crossing the land as the hedge leadeth to a hallar (*sic*) called Stephen's Torrs, and there hence as a stone wall, being a landseare between this Lordship and the lands of Wm. Price Esq., leadeth to a little creek called Newslade, and so westward by the side of the sea to the farthestmost or point of Wormshead, being within the Lordship afsd, and so northward by the



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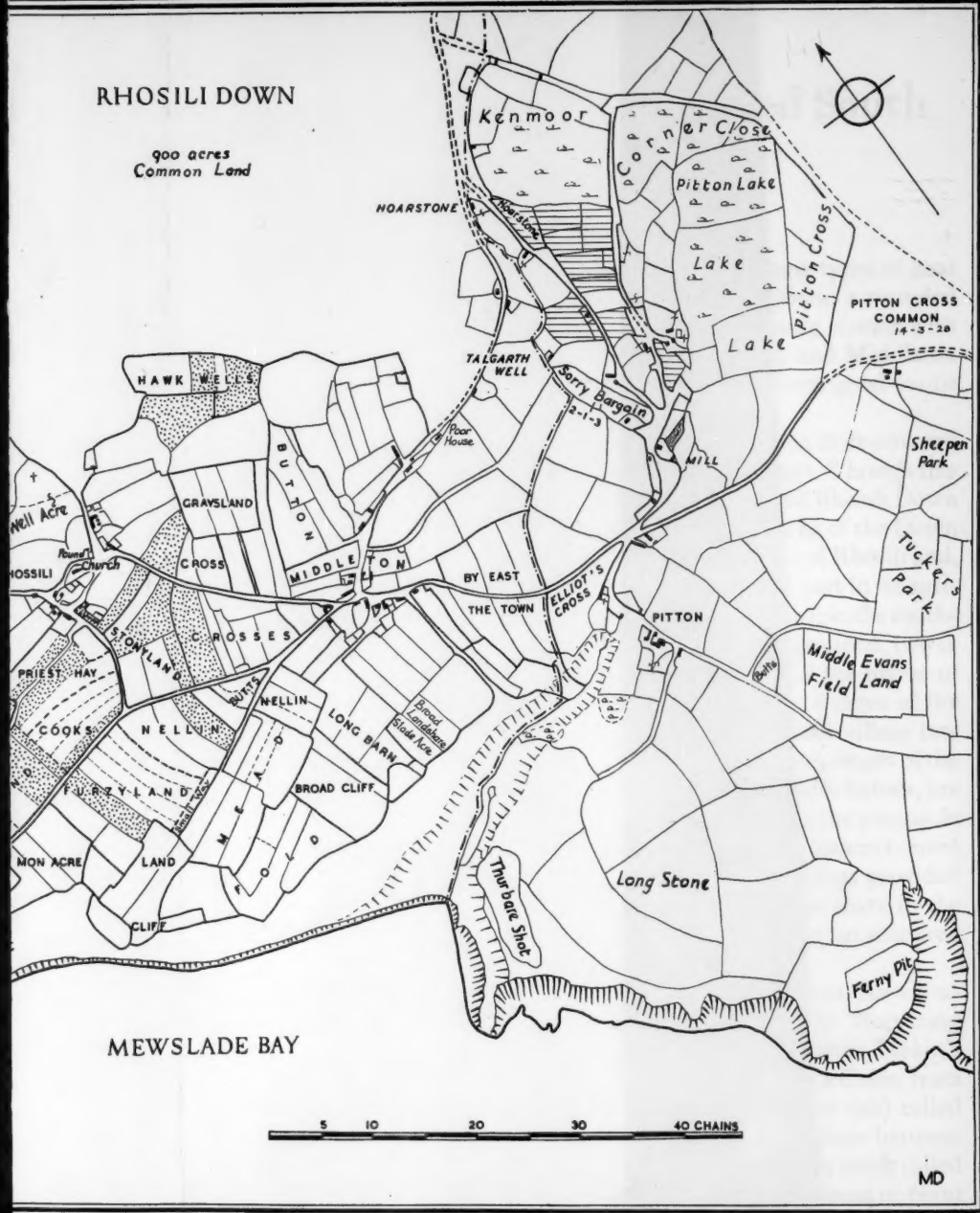


FIG. I

Rhosili Manor in 1845. The northern half of the manor, which covers most of the 900 acres of common on Rhosili Down, is excluded, as is Worms Head. Continuous lines represent fences or walls: balks are shown by broken lines. The simplified coastline is shown as on the tithe map on which this map is based. The strips grouped under the name Yearland, and the adjoining four strips of Bramble Bush, are known collectively as Dis Furlong. The adjoining "Field" is Dip Slades.

side of the sea to the fall of the Dilly-Lake being the landseare between the parish of Langennith and Rosilly."<sup>1</sup> Fig. I shows the part of the landward boundary of the manor which lies between Mewslade Bay and Hoarstone, a name used in Gower and elsewhere for a manorial boundary mark and subsequently for a field and place name. The "Dilly Lake" is a stream running out into Rhosili Bay beyond the northern end of Rhosili Down. Another part of the survey of 1598 notes that parts of the manor were held separately, and this was so in 1780. Fig. II is based on one of the fine series of maps by John Williams of the estates of Thomas Mansel Talbot of Penrice, which are now deposited in Glamorgan County Record Office. Nearly fifty acres and a farmstead in Rhosili village were owned by the Popkin family of Forest, Llansamlet, in 1780. With the exception of one field owned by William Richard, the remainder was held by Thomas Mansel Talbot as lord of the manor. The manor was part of the lordship of Landymor, and the two parts were sometimes referred to as "Llandimor and Rhosilli, the Greater and the Less."

The southern, arable half of the manor lies between Rhosili and Middleton villages and the sea. It comprises the snout of land which culminates in the superb broken limestone ridge of Worms Head. The arable land lies on the surface of a plateau which slopes gently south-westward from a height of 275 feet at Rhosili village to 165 feet at the coastguard station on the south-west common, nearly one mile away. The plateau top is thus almost flat. It falls sharply to seaward in limestone cliffs, and these cliffs and the unenclosed cliff tops were and are common grazing land. The cliff top provides a sweeter pasture than Rhosili Down but the southern cliff slopes have much rough bracken and gorse. The cliffs on the north-west side are precipitous. There were also sixteen acres of pasture on Worms Head. In 1845 they were classed, together with Rhosili Down and the cliff pasture, as common land. In 1780 they were let to Matthew Beynon (tenant B: Fig. II) and in 1693 to John Beynon for an annual rent of five shillings.

The arable holdings are separated from the cliff common by walls built of stone dug on the spot; the cliff top is pitted with shallow holes at the base of these walls. Within the enclosure walls the arable holdings are arranged in a pattern which is now unfamiliar but was formerly characteristic of the southern lowland fringe of South Wales. This land within the walls forms Rhosili Open Field, locally known as the Vile.<sup>2</sup> Here open-field cultivation

<sup>1</sup> *Archaeologia Cambrensis*, suppl. vol. 1864, p. 160.

<sup>2</sup> The word *vile* is probably derived from O.E. *gefilde*: a field or plain. Ekwall cites this as the source of the Lancashire Fylde (The File *pro* Feild—1586) in *The Place Names of Lancashire*, 1922, p. 139. Mr Gwynedd O. Pierce, who also suggested this derivation, adds that the

survives today with the holdings only very slightly different from those shown on Figs. I and II.

#### THE OPEN FIELD IN 1780

The Vile is laid out in long narrow strips which average one and a half acres in area. The marginal strips were and are enclosed within limestone walls near the cliffs and with earth banks topped by thorn hedges near the villages. These enclosed fields were sometimes meadow or pasture land in 1780 as they are today, and those which border the village farms have probably always been closes used for pasturing young stock and milch cows. Within the peripheral belt of enclosed strips the Vile was and is arable land and there are no fences between the strips tenanted by various farmers. The dividing line between the strips is a low narrow balk known as a landshare, a word widely used to denote a boundary in south-west Britain, e.g. in Pembrokeshire the Landsker separates the northern area of predominantly Welsh from the southern one with mainly English speech. Landseare is used for 'boundary' in the Elizabethan survey already quoted and landshares or balks are further discussed below. Strips tenanted by the Rhosili and Middleton farmers were and are widely scattered over the Vile. Fig. I shows that groups of strips have distinctive names and that a holding is made up of strips distributed over these different segments of the open field. These names, which often provide clues to soil conditions ('Stonyland' marks the southern limit of glacial drift) are still used. Strips held by one tenant rarely adjoined each other in 1780, except in the extreme south where the two adjoining patches tenanted by George Thomas probably represent an encroachment on the cliff common.

In 1780 the six farmers of Rhosili village (B-H on Fig. II) held nearly 142 acres in the Vile and in closes of meadow around their farms. It will be noticed that several holdings, here and at Middleton, were of about nineteen acres and that Matthew Beynon's holding was considerably above the average. The seven farmers of Middleton (I-P) held nearly 130 acres in the Vile and, to a greater degree than those of Rhosili, in enclosed fields sloping up to Rhosili Down and gently down towards Mewslade Bay. Many of the Middleton farmers held only one or two strips in the Vile; the larger share of open

voicing of the initial *F* to *V*, a common feature of the dialects of south-west England and the south-west Midlands, has influenced field and place-names in the Vale of Glamorgan. Similar field-names occur in Gower, and Furzylands is pronounced Verzylands at Rhosili. Both Gower and the Vale of Glamorgan have received peoples from lands around and across the Bristol Channel for many centuries and a large proportion of their field-names are English. A Welsh derivation for *vile* is unlikely.



arable land was therefore held, and was probably always held, by the farmers of the older group of farms around the parish church of Rhosili. Many of the holdings are small, not by Welsh standards generally, but, say, in comparison with the larger farms of the Vale of Glamorgan. But it must be remembered that 900 acres of Rhosili Down and a further eighty-two acres of cliff common were available for the communal grazing of the animals of both villages.

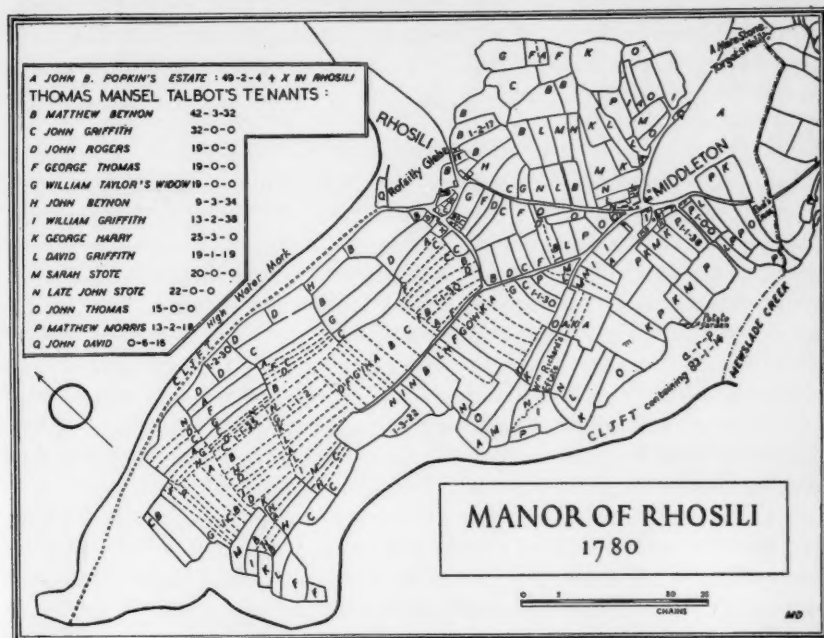


FIG. II

Rhosili Manor in 1780. The coastline and 'cliffs' are shown as on John Williams's map of 1780.

There are no common meadows such as Llanbethery Moor, in the Thaw valley, which is still communally grazed in the summer half-year. No similar flat-bottomed valley exists in Rhosili manor or elsewhere along the south coast of Gower. The Bishopston valley is a possible exception and the cattle of several farmers may once have grazed in meadows there (Fig. III).

An annual redistribution of strips was unknown at Rhosili. The strips shown in Fig. II were tenanted as part of a holding year after year. They were handed over when holdings changed tenants, as did that of John Griffith (Fig. II, c). Between 1780 and 1845 this was added to the holding of the Thomas family and the strips which made up the fifty-one acres held

in 1845 by Robert Thomas are held by that family today. Extensions of holdings could be made only into the common pasture. By 1780 this had been done upslope on the south face of Rhosili Down, probably to the limit of cultivation on this exposed slope. A small encroachment on the cliff common is the "potato garden" tenanted by Sarah Stote. Potato patches were often enclosed in this way in the eighteenth and early nineteenth centuries on the margins of fields and roads. Sarah Stote held Broad Cliff (m) in addition to her twenty-acre holding and its distinctive classification suggests that it had been enlarged by encroachment. By 1845 it had been joined to the potato garden by another enclosure.

#### RHOSILI MANOR IN 1845

Fig. I shows the old parsonage and its glebe lands on the shelf of drift-covered land below Rhosili Down. A terrier of 1720<sup>1</sup> describes the parsonage as having two rooms and lofts (it was declared unfit for habitation a century later), a barn and three outhouses, and a small croft on the north side of the house. This croft is the 'burgage' of Fig. I; the name is frequently used for such closes as far west as south Pembrokeshire. The parsonage had eight tillable fields in 1720, totalling twenty acres, and six acres of warren. The rectory now stands in Rhosili village, but the former parsonage and its well-kept fields are still a distinctive feature of the land fronting Rhosili Bay. Glebe land lying apart from the open-field system is a common feature and may be seen in other parts of Gower—e.g. at Bishopston (see below).

Fig. I is based on the tithe map and award of 1845. Holdings in the Vile, and more especially those of the Rhosili farmers, are only slightly different from those of 1780. For this reason only one open-field holding has been shown. The farm clusters have not been enlarged, and in 1845, and today, the houses and land are mainly occupied by the descendants of the farmers of 1780. Christopher Rice Mansel Talbot of Penrice was lord of the manor in 1845. A comparison of Figs. I and II reveals very minor changes in the open field and in the enclosed fields east of it which lie on the margin of the Mewslade valley. Up this valley, on the north side of Pitton village, was the only suitable point for a mill to grind the locally produced corn. There was no mill in the manor of Rhosili, where there are no considerable surface streams. North of Pitton Mill squatters' holdings can be seen on both sides of the manor boundary. An unusually large one, that of Francis Jones, is shaded on Fig. I. These squatters' holdings were more frequently of two fields like that named Sorry Bargain. All this south-eastern fringe of Rhosili Down is a poorly drained area of rough grazing.

<sup>1</sup> J. D. Davies, *West Gower*, Swansea, 1885, III, p. 169.

## PRESENT-DAY CONDITIONS

Fig. I shows two lanes leading into the open fields. They are deep and narrow and just wide enough for a tractor. The main hedged lane from Middleton to Limestone Hills is now disused along Sandy Land and Cooks, and the only way for modern agricultural vehicles down to the Vile from Middleton is along the motor road to Rhosili and thence down the lane through Priest Hay to Middle Field. A number of unfenced ways run along several of the groups of strips and there are paths out to the cliff top whence grazing sheep can be inspected. The tenants of Rhosili manor have, in recent years, bought their holdings from the Penrice Estate, but there is as yet little rearrangement of the pattern of strips. Holdings are widely scattered, and some time may elapse before considerable amalgamations occur. During the latter half of the nineteenth century further strips near Rhosili village were enclosed within walls and hedges. Those grouped on Fig. I under the names Sandyland, Furzyland, Mead, and Nellin became hedged strips with the hedges running on top of the earthen balks. Many of them reverted to pasture in the nineteenth century and a few have not been ploughed again. Cattle graze there and on the enclosed fields near the cliffs. 'Cooks' remains as a small isolated group of strips and is known as the Little Vile. A wire fence has recently been run through the centre of it on top of one of the balks. In the main Vile a few balks have been ploughed out and an occasional light fence has been run along the side of a lane over the open field. The only permanent structure in the area is a light shed built by the tenant of the pasture at Sound Park. The homes of those who work the land remain in the villages some distance away.

This south-western extremity of Gower is exposed to strong sea winds, and hedges and shelter belts might appear to be far more suitable than low balks one to two feet high as protection for crops. But long experience has shown that the winds dry the corn, and in the boisterous late summer of 1954 it was far less badly laid than in enclosed fields further inland in Gower where the hedges had acted as a funnel for wind gusts. Low balks are also more economical divisions of land and do not shade the crops as do high earth banks topped with thorn hedges leaning away from the west winds.

Are these narrow one-and-a-half acre strips likely to survive? Their distinction has caused them to be marked on the 2½-inch map (Sheet 21/48) as "allotment gardens," and they are in fact as carefully cultivated as many market gardens. The old manor of Rhosili and the former fee of Pitton now produce large quantities of spring cabbage: mild springs make early crops a profitable undertaking, as in south Pembrokeshire. Potatoes, cereal crops, rape, and rotation grasses like lucerne and sainfoin are also grown. The

flatness of the plateau top made it possible to lay out straight-sided strips and these are far more convenient for tractor ploughing than strips which curve with the swing of the land. In other parts of Gower where such curved strips, often of one acre or less, have been enclosed, tractors get into more difficulties than the ox ploughs for which these strips were originally designed (see below). The narrowness of the Rhosili strips appears to present no problems, and a few strips are even subdivided along their length; for example, a few furrows may be sown with barley and the rest with potatoes.

In medieval open-field agriculture cattle were turned into the stubble after harvest and grazed in common as they still do in the open fields of Laugharne across Carmarthen Bay. This practice is not remembered at Rhosili, though the older farmers used to graze their cattle on their own stubbles in the open fields and herd them individually, as does a French farmer in the open plains of Beauce today. Periodic grazing has now wholly lapsed on Rhosili Vile.

The Vile is the mainstay of Rhosili and Middleton villages and is in a good state of intensive cultivation. The small local tourist industry and agriculture hardly impinge upon each other, but together they make for greater local prosperity than in the nineteenth century.<sup>1</sup>

#### OPEN FIELDS IN GOWER AND OTHER PARTS OF SOUTH WALES

Many surveys of open-field agriculture exclude or dismiss the Welsh evidence. The system was best developed in the English midlands and spread westward during the Anglo-Norman occupation of South Wales. "The saied Lords marchers being Englishe lords . . . brought the most parte of the landes of the saied Lordships to be of English tenure."<sup>2</sup> It is likely that fields were communally tilled by Welsh tribal units in South as in North Wales before the Norman Conquest, but the open-field patterns and nomenclature which survived until recently in many South Wales areas are essentially English. Vestiges of open-field farming can be found in documents,<sup>3</sup> in estate and tithe maps, and on the ground at the present day in all South Welsh counties from Monmouthshire westward and northward to Cardiganshire. It

<sup>1</sup> In 1833 when the lord of the manor gave up his right to 'wreck de mer' it was hoped that "the neighbourhood, which is very poor, will be considerably benefited by this occurrence." Up to the early nineteenth century smuggling was a minor local occupation. In 1801 George Beynon, Customs Officer, seized a cargo of 108 eight-gallon casks of brandy, 'Geneva', rum, and wine.

<sup>2</sup> George Owen in 1603. See *The Description of Penbrokeshire*, ed. Henry Owen, Part III, 1906, p. 144.

<sup>3</sup> The documentary evidence was first collected and presented in detail by William Rees in *South Wales and the March*, Oxford, 1924.

is in the coastal lowlands and in the main valleys, where English influences were strongest, and fairly flat land most abundant, that the manorial system was established and persisted. The homesteads are grouped in nucleated villages as in the English plain, and not scattered over the countryside as they are in the pastoral uplands of Wales.<sup>1</sup>

As might be expected, the south Monmouthshire open fields, nearest the present border, were most akin to those of the English midlands. Undy, Magor, Redwick, and Caldicot had large areas of open arable and meadow land (sometimes described as Furlongs) which were enclosed as late as 1850–8.<sup>2</sup> Some of their common pastures are still unenclosed. In Caldicot parish 225 acres lay in intermixed strips of arable or meadow until 1858. Most of them lay in the Great Field which bordered the north side of the village.<sup>3</sup> Open arable and meadow land survived on the outskirts of Monmouth borough until the mid-nineteenth century and was also found on the margins of the middle Usk valley. By its estuary The Marshes, on the north side of Newport, was the common meadow of the burgesses.<sup>4</sup> Open-field farming was a feature of the Vale of Glamorgan where it is widely attested in documents and maps throughout the area between the common meadows of Cardiff, on the eastern, and those of Baglan on the western margin. A large common meadow is still in use on Llanbethery Moor in the Thaw valley. It is similar to meadows in the adjoining manor of Llancadle which were formerly cropped for hay by individual farmers and then grazed in common by their cattle. These lammas meadows are on the flat bottom of the valley of the Kenson River, a tributary of the Thaw. On Llanbethery Moor holdings are substantially the same today as they were when the tithe commissioners surveyed the area in 1840 and drew up the tithe award for the parish (Llancarfan). Stinting of cattle grazing on the moor is determined according to the size of the holding at a spring meeting of the farmers involved. Open arable fields in many parts of the Vale of Glamorgan and Gower were small. The deep valleys which trench the coast plateaux in both areas often leave only narrow blocks of plateau top available for ploughing. This was the case

<sup>1</sup> "Their buildings are Englishe like, in Townreddes and villages and not in severall and lone houses."—George Owen, *op. cit.*, Part I, 1892, p. 33.

<sup>2</sup> These four parishes are included in the distribution map in the first edition of C. S. and C. S. Orwin, *The Open Fields*, Oxford, 1938, p. 65, as the only Welsh open-field areas.

<sup>3</sup> This was formerly the West Field. See William Rees, *A Survey of the Duchy of Lancaster Lordships in Wales, 1609–1613*, Cardiff, 1953, pp. 135 ff.

<sup>4</sup> Hay from this common meadow was sold by auction until the nineteenth century and the aftermath was grazed in common. Profits from hay sales were divided among the resident burgesses: the last payment from this fund was made in 1924. See David Williams, *John Frost: A Study in Chartism*, Cardiff, 1939, pp. 28–9.



around Llancadle village between the steep-sided Kenson and Thaw valleys, and in other parts of Llancarfan parish.

The manors of the Gower peninsula provided several examples of small open fields until the nineteenth century, but with the exception of Rhosili Vile all are now enclosed. Occasionally the balk which separated two strips can still be found, topped by a wire fence, e.g. in Broad Acre, south of Pyle Cross at Bishopston (Fig. III). The extensive common pastures of Gower have resisted enclosure to a remarkable degree, and Port Eynon Moor, en-



FIG. III

The Manor of Bishopston in 1844. This map is based on the tithe map of the parish. In the southern part of the manor, shown here, parish and manor boundaries coincide. The 'dawpit' west of Bishopston village is a sinkhole in the bottom of the limestone valley.



closed in the early seventeenth century, is the only considerable common which has been converted to hedged arable fields and meadows in recent centuries. Boundaries of commons and rights of grazing and of quarrying (of limestones on cliff commons and millstones on sandstone commons like Cefn Bryn and Rhosili Down) were always clearly defined in manorial surveys.<sup>1</sup>

The tithe map and award of 1844 for Ilston parish show "Lithered" (Llethrid) Meadow between Pengwern Common and the stream which drains Welsh Moor and drops underground in the limestones of Parc le Breos Cwm, south of Llethrid. The outer shares in Llethrid Meadow were enclosed by the early nineteenth century, but two groups of unfenced strips (described as landshares) lay within them. The strips varied from half to one and a half acres in the northern to two and a half to seven acres in the central block of strips. Llethrid Meadow may well have been the remnant of a lammas meadow similar to the Lord's Meadows granted to the burgesses of Swansea by the de Breos charter of 1305-6.

Fig. III, based on the tithe map and award for Bishopston, shows typical examples of former field patterns in Gower which are by no means wholly obliterated. The limestone coast plateau is trenched here by the two bordering valleys and by that which meets the sea at Brandy Cove. In 1844 the flat tops of the segments between the valleys were laid out in narrow arable strips. Many strips had already been hedged and these hedges have since been partly removed to form normal fields. But several strips of approximately one acre are still being cultivated today. Fig. III shows the two villages of Bishopston and Murton, in which the older farms are grouped, and their small adjoining commons where cattle, sheep, ponies, and geese graze today. The sea cliffs and Hankin Cliff (above the Bishopston Valley) were also common pastures. The larger fields between Bishopston village and the Rectory were glebe lands farmed by the rector. The windswept Bishop's Wood behind Caswell Bay was occupied by nine farmers (one had two shares). Each share included just over an acre of woodland which may have provided very rough pasture or, possibly, timber for 'housebote and heybote' as in medieval times. The field names given in the 1673-5 survey of the manor of Bishopston<sup>2</sup> all appear on Fig. III and the descendants of many of the

<sup>1</sup> See, e.g., *Archaeologia Cambrensis*, suppl. vols. 1861, 1864, 1870. Many unpublished manuscripts provide earlier and later details. Among the latter is the largely unpublished *Survey of the Seignories of Gower and Kilvey with the several members of which the Most Noble Henry Duke of Beaufort is Lord*. This survey, which is partly based on earlier material, was made in 1764 by Gabriel Powell of Gellihir, steward to the duke of Beaufort. It is in the library of the Royal Institution of South Wales at Swansea.

<sup>2</sup> *Archaeologia Cambrensis*, suppl. vol. 1864, pp. 143 ff.

seventeenth-century farmers were still holding land there as at Rhosili and elsewhere.

Across Caswell Bay groups of strip fields are found in the adjoining manor of Oystermouth. The best examples are around Langland and Newton villages, and although much arable land is being built over here, the field pattern is still discernible. The narrow lanes show the right-angle bends and frequent changes of direction characteristic of cart tracks which formerly bordered the margins of open fields. A typical example is the disused lane which formerly ran from Newton northwards through the open field and out to Clyne Common, the common pasture of Oystermouth manor. The unfenced tracks which run alongside the groups of strips in Rhosili Vile change direction just as frequently.

Similar field patterns existed in the nineteenth century at Lunnon where the arable land above Parkmill gorge lay in ten unfenced strips described by the tithe commissioners as landshares. They were of half to three acres and together formed Lunnon Great Field. On the north side of the group of farms which form Lunnon village the High Grove field lay in thirteen strips. Between the Great Field and High Grove lay Middle Field and Coity Ditch, similarly subdivided. At Reynoldston holdings were again scattered, though the fields were largely enclosed (Fig. IV). The Lucas family had replaced their roadside farm of Stout Hall by a mansion with the same name which they had built in the adjoining field. They had laid out a park around it in what may well have been a large common field south of Reynoldston village. The tithe map of 1838 shows that a considerable acreage in this park, made up of unfenced landshares, was owned by C. R. Mansel Talbot of Penrice. Along the stream which forms the southern boundary of Reynoldston parish and manor, the meadows were in a few cases still laid out in unfenced strips. Further south in Gower, between the farm clusters of Port Eynon and Overton, there was a Middle Field in eight unfenced acre strips in 1844 and the adjoining fields of Hill Land and Boarland included several fenced strips grouped under these names. The meadow at the bottom of Horton Cliff (common pasture adjoining the village behind the dunes) lay in six strips which the tithemen called landshare pieces. These meadow strips were valuable because this type of lush meadow was rare around Horton, and they were occupied by several tenants.

In the north of Gower there are more examples of arable strip fields and scattered holdings. From medieval times onwards the beasts of the northern farmers had access not only to Cefn Bryn and other large hill commons, but also to the vast salt marshes which fringe the south side of the Burry River estuary. In 1847 Llanrhidian village, and Leason west of it, were flanked by

small groups of unfenced arable strips, and the Great Meadow, which adjoins Llanrhidian village on its north side, was communally occupied. Similar field patterns existed around Landimore and Llanmadoc villages and a map of the local estates of Thomas Mansel Talbot, made by John Williams

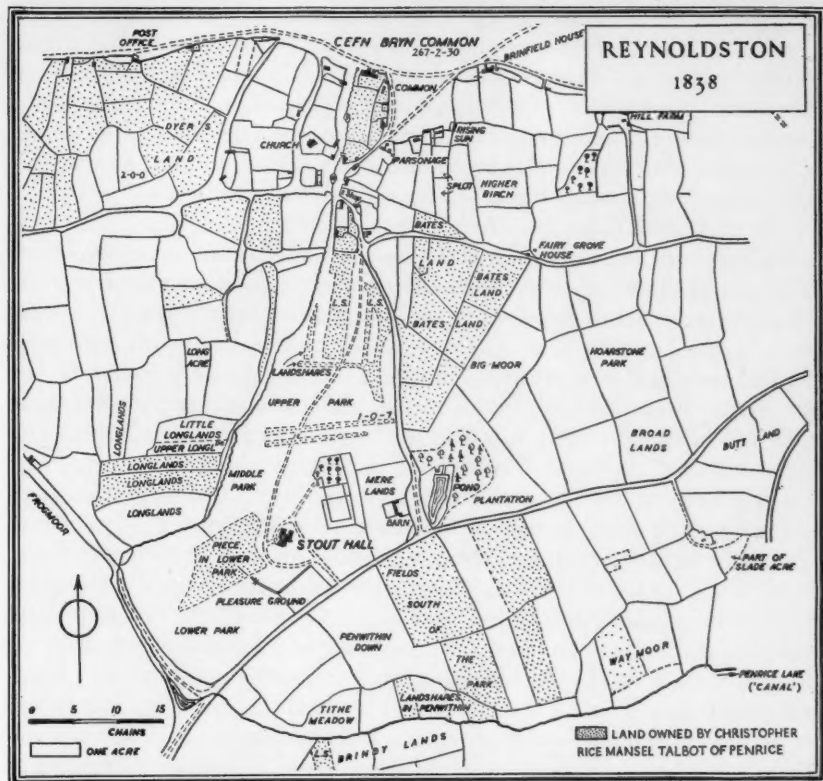


FIG. IV

Part of the manor and parish of Reynoldston in 1838. The farmers of Reynoldston had 267½ acres of common pasture on Cefn Bryn, mainly off the north of the map. The unfenced road along the common is said to have been laid out by Thomas Mansel Talbot.

in 1780, shows that the Penrice lands and those of several other owners were intricately intermingled in strips that were often unfenced and were grouped under such names as Hoarstone, East Field, Great Park, Furzehill, and Great Longfield. Between Llangennith village and its Burrows lies part of Westown manor of Llangennith (Priorston was the 'East Town' of Llangennith). This area is an undulating and largely arable slope, with Llangennith

Marsh at its foot. By 1844, when the tithe commissioners surveyed this parish, the Marsh had been enclosed, but the meadows and withy-bed on its eastern side were described as "in landshares" and were partly unfenced. South of Broughton, in the north of the manor, a field called Longstone was still in four landshares, and one east of Broughton, called Landshare by the tithemen, was in six. Holdings of the farmers of Broughton and Llangennith settlements were scattered throughout the cultivable area. Llanmadoc Down backed the bigger cluster of farms at Llangennith and provided an extensive common pasture. The large hill and dune commons of the parish of Llangennith are described in the tithe award as Lord's Waste. In most awards this older form is not used by the tithemen to describe common land.

In south Carmarthenshire three open fields with a total area of about 300 acres survive at Laugharne. Here they have been in continuous use since the early fourteenth century when Guy de Brian granted the land to the burgesses of Laugharne.<sup>1</sup> South Pembrokeshire and the St David's peninsula were formerly open or 'champion' country and many strips of arable land were enclosed only in the nineteenth century. The *Description of Pembrokeshire* by George Owen of Henllys, lord of Kemes, contains many references to fields and farming in sixteenth-century Pembrokeshire, "a champion and plaine country" in which he estimated that 3,000 young people were employed in herding because of the lack of enclosures.<sup>2</sup> Tithe and estate maps show many strip fields in the Englishries of such manors as Fishguard and Newport, and further south in the manors on both sides of Milford Haven. On its north side the villagers of Houghton in 1840 farmed open fields which included an Oxland. In the Pembrokeshire lowlands a bovat or oxland measured eight acres, and this is the total area of the strips which made up the Houghton oxland. The bishop of St David's was lord of several Pembrokeshire manors and it was noted in 1802 that bishops could not be expected to pay their portion of the expenses of obtaining an enclosure act and of enclosing the 30,000 acres of common and waste land in the diocese.<sup>3</sup> Enclosure of this great area could hardly be completed during the tenure of the bishop who initiated enclosure, nor would he reap its reputed benefits.

There was a good deal of church land intermixed with lay holdings in other areas where open fields survived to a late date, e.g. in south Monmouthshire, and the name of a Cardiganshire open field which is still in use is suggestive. This is Morfa Esgob (The Bishop's Moor), on the raised beach

<sup>1</sup> Margaret Davies, *Geography*, XL, 1955, pp. 169-77.

<sup>2</sup> George Owen, *op. cit.*, pp. 42 and 146-7.

<sup>3</sup> John Clark, *Report to the Bishop of St David's*, 20 June 1802 (a privately printed letter now lodged in the Nat. Library of Wales).

between Llan-non and Cardigan Bay. These coastal shelves of Cardiganshire are valuable arable land and were formerly famous for their malt barley crops.<sup>1</sup> A part of the raised beach which adjoins Morfa Esgob now produces

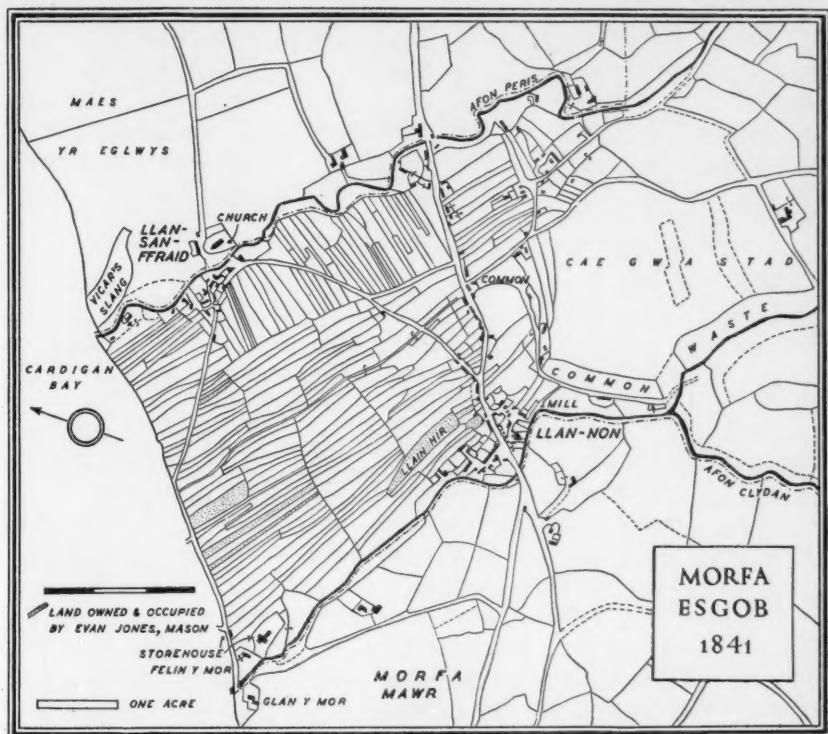


FIG. V

Morfa Esgob in 1841. This open field lies in the parish of Llansanffraid, but the other bordering village, Llan-non, housed the greater number of the men who farmed it. Llan-non is better placed than Llansanffraid as a road and fair centre. Fig. V is based on the tithe map which does not adopt the normal practice of showing unfenced strips bordered by broken lines. The strips of Morfa Esgob were fenced only round the villages and are largely demarcated by broken lines on Ordnance Survey maps made later in the nineteenth century. As there is no contemporary Ordnance Survey map, fenced and unfenced strips have not been distinguished on this map showing conditions in 1841. Morfa Mawr, a large holding off the south of the map, was formerly a grange of Strata Florida Abbey. Vestiges of similar strip fields are found on other parts of the Cardiganshire raised beach, e.g. around Llanddewi Aberarth village. The scale represents 15 chains.

<sup>1</sup> Much of this Cardiganshire raised beach lay in intermixed quillits. See Thomas Lloyd and the Rev. Mr Turnor, *General View of the Agriculture of the County of Cardigan*, 1794, p. 13.



large yields of Aberystwyth pedigree grass seeds. Morfa Esgob has been owned and farmed for several generations by the villagers of Llan-non and Llansanffraid which border it. Here a large number of small narrow strips produce good crops, though around the villages the strips have reverted to pasture and increasing numbers are being enclosed in wire fences run along the balks. Fig. V shows a typical holding. The villagers had only a few strips each and would combine their farming with a trade, as did Evan Jones who was a mason. Smallholdings farmed in this way are still widespread in rural Wales, though examples like the quarrymen's smallholdings of Caernarvonshire are strikingly different in lay-out from those of Morfa Esgob.

#### BALKS OR LANDSHARES

The surviving South Wales open fields—at Rhosili, Laugharne, and Llan-non—vary as to terrain, crops, and communal grazing of cattle on stubbles (practised only at Laugharne), but all are on relatively light soils and in all of them the strips are separated by low balks which are known at Rhosili and Laugharne as landshares, landscars, or landskers.<sup>1</sup> These must not be furrowed by the plough or disturbed in any way. In 1620 some tenants in the lordship of Haverfordwest, in exchanging their strips so that they might be more conveniently worked, had broken the intervening landshares. An “amendment” was “straightly required,” and whilst exchange of pieces to facilitate enclosure was not condemned, it was suggested that “notwithstandinge the exchange the ancient landseares and meares betwixt the pieces be preserved.”<sup>2</sup> A Nicholaston (Gower) jury's comment in 1632 also appears to refer to the preservation of these balks: “no landshare hath been altered or removed out of his place, to our knowledge, within the saide mannor.” Markers on the manor boundary are described specifically as “landshare stones” in this survey.<sup>3</sup> When they are ploughed out, as was a Rhosili landshare in 1954, the earth and small field stones of which they are composed are soon scattered and very few traces survive a few seasons' ploughing.

Low balks known by some variant of the name ‘landshare’ are characteristic of former open-field areas in south-west England and it has been suggested that they were found where the open fields lay on relatively light

<sup>1</sup> Landshare and landscore fields were also found in Devonshire where Braunton Great Field has balks. See H. P. R. Finberg, ‘The Open Field in Devon’ in *Devonshire Studies*, 1952, pp. 266, 276–8. In the open fields of the Isle of Portland the balks are known as ‘lawnsheds’. See C. H. Drew, *Antiquity*, xxii, 1948, p. 79.

<sup>2</sup> P.R.O., Land Revenue Books, 2/206, ff. 1–4.

<sup>3</sup> *Archaeologia Cambrensis*, suppl. vol. 1864, p. 225.



soils, e.g. in the chalk lands of Wessex.<sup>1</sup> The surviving South Wales examples support this. It has been argued that balks were a feature of open-field areas where conditions were unique,<sup>2</sup> but the evidence for their existence in widely separated areas continues to accumulate. Although they cannot now be detected in enclosed fields on the ground, they appear to have been widespread in South Wales. The term 'landshare' was used by the tithe commissioners for parts of South Welsh open fields, though they assumed that it described the strip—'a share of land'—and not the balk. Eighteenth-century estate maps also show groups of strips jointly named "landshare fields." In the seventeenth-century manorial surveys of Fonmon, Penmark, and Llancadle (Vale of Glamorgan), unfenced strips which the tithemen called landshares in 1840 are referred to as "lancets" and "landsetts." In the manors of the Wiltshire chalklands the balks were lynchets and lynchards.<sup>3</sup>

In much of the English midlands ridge and furrow has been correlated with open fields.<sup>4</sup> Others have argued that drainage of wet clay lands rather than land division was the controlling factor there.<sup>5</sup> The only surviving open field in South Wales known to the writer to be in ridge and furrow is the Lees at Laugharne which is a wet pasture on the fringe of Laugharne Marsh.<sup>6</sup> In South Wales large enclosed estates were being ridged and furrowed by improving landlords well into the nineteenth century,<sup>7</sup> and the practice has left its traces on hillsides where the English system was never imposed.

The theory of the curving plough strip formulated by Dr Eyre<sup>8</sup> is not valid in South Wales. As he states, such strips enable the team to turn more easily into the headland, but to equate our groups of curving strips with ridge and furrow is difficult as the open fields of South Wales are, and probably were, in flat strips divided by balks. All that can safely be said of our widely distributed curved strips is that in the open arable fields curvature often increases with gradient and with the swell of the slope. This is noticeable in the upper parts of Rhosili Vile (in Cooks and Furzyland—Fig. II) and at Laugharne on the steeper eastern slopes of the Hugdon.<sup>9</sup> Two miles

<sup>1</sup> Eric Kerridge, *Economic History Review*, 2nd series, IV, 1951, p. 19, and *Agricultural History Review*, III, 1955, pp. 32-40.

<sup>2</sup> C. S. and C. S. Orwin, *op. cit.*, 1954, pp. 49-50. <sup>3</sup> Eric Kerridge, *op. cit.*, 1955, p. 35.

<sup>4</sup> M. W. Beresford, *Economic History Review*, 2nd series, II, 1949-50, pp. 34-45; W. R. Mead, *Geographical Journal*, CXX, 1954, pp. 34-42.

<sup>5</sup> Eric Kerridge, *op. cit.*, 1951, pp. 14-36. <sup>6</sup> Margaret Davies, *op. cit.*, fig. 4, p. 175.

<sup>7</sup> Their methods of ploughing ridges and intervening 'reens' with ox teams are given in some detail in Walter Davies, *General View of the Agriculture and Domestic Economy of South Wales*, 1815, I, pp. 287-9. These ridges were usually narrow and of no great height.

<sup>8</sup> S. R. Eyre, *Agricultural History Review*, III, 1955, pp. 80-94.

<sup>9</sup> Margaret Davies, *op. cit.*, fig. 2, p. 173.

east of Brecon there was a good group of curved strips at nearly 1,000 feet near Llechfaen on the southward-facing slopes of the Usk valley.<sup>1</sup>

Neither in medieval nor later times were plough teams necessarily of "eight or more oxen yoked in pairs." Four oxen were most common in Wales, but there were many combinations, and the Welsh Laws mention yokes of three, six, nine, and twelve feet for the yoking abreast of two, four, six, or eight of the small oxen of the Dark Ages and medieval times.<sup>2</sup> Mr Payne suggests that "yoked abreast, four or six oxen require no more headland space to turn than two oxen do." He believes that eight or six were yoked abreast until the twelfth century, and four abreast until the end of the fifteenth century when the long team was adopted throughout Wales.<sup>3</sup> Dr Eyre's theory hinges on the obsolescence of the long team in early Tudor times.

Dr Eyre asks us to seek curving plough strips grouped *en échelon* as evidence of medieval ploughing. In South Wales we find some of the best examples lying on a sward through which, before completion of ploughing in the manner of his Fig. IV A, the ox team would have floundered heavily to make a landfall on the headland. These groups of curved strips lay in very wet common meadows—e.g. by the mills of the bishop of St David's at Llanwnda (Pembrokeshire) and Llangyfelach (Glamorgan); at Tenby, and at Baglan near Neath; and above all in common meadows behind the sea wall in south Monmouthshire such as the Bees Ditch in the manor of Caldicot and the Hencroft in the manor of Undy.<sup>4</sup>

The open field of Rhosili, spread across a large and formerly remote promontory thrust into the Bristol Channel, would seem to provide evidence for the survival in Wales of a method of farming which is believed by some English authorities to have reached the limit of its westward spread in the Welsh Marches. The strips and landshares of Rhosili suggest, with other Welsh examples, that the lay-out of the strips varied as greatly as did physical conditions in the areas to which the system spread. The balks appear to be similar to those of south-west England, and provide one more link in the bonds of custom and culture which have joined the Bristol Channel shores since prehistoric times.

<sup>1</sup> *A Book of Survey of the Estates of the Hon. George Venables Vernon*, 1776, DDBF, Glamorgan County Record Office.

<sup>2</sup> F. G. Payne, *Yr Aradr Gymreig*, Cardiff, 1954, pp. 147 and 159.

<sup>3</sup> F. G. Payne, *Archaeological Journal*, CIV, 1948, p. 860 and *op. cit.*, 1954, pp. 164-71.

<sup>4</sup> The farmers of the Monmouthshire "Moors" maintain their excellent fattening pastures in ridges and furrows to solve their major problem of drainage into the major reens and thence into the sea. It might be more appropriate to say that these meadows lie in ridge and drain. The local description would be "ridge and reen."

# The Development of Feeding Standards for Livestock

By CYRIL TYLER

WHEN writing of the historical development of a scientific concept, it is essential to give at least a general picture of the scientific ideas involved. A brief account of these ideas will, therefore, be given first.

If feeding stuffs are to be used to their full advantage, then it is essential for us to know something of their relative merits and of their effects upon the animal. Further, if they are to be quantitatively compared with each other, their value must be first expressed in terms of some unit, and their quantitative effect on the animal must also be measurable in these same units. Thus three feeding stuffs may contain  $x$ ,  $y$ , and  $z$  units of nutrient material per hundred pounds respectively, whilst a cow may require  $m$  units of nutrient material to keep it alive and  $p$  units of material per gallon of milk. From this knowledge of the three feeding stuffs and the requirements of the cow, we should be able to decide theoretically on a suitable mixture of these feeding stuffs for the cow. Clearly this idea can be extended to all feeding stuffs and to all classes of product, such as eggs and meat. The historical development of feeding standards has therefore gone hand in hand with the nutritional evaluation of feeding stuffs, and both have progressed in the light of an ever growing knowledge of physiology and biochemistry.

At first, feeding stuffs *per se* were studied, and men learnt to know something of the worth of hay, turnips, oil cake, straw, and so on; but all the knowledge was empirical. Later it was recognized that each feeding stuff could be analyzed chemically and that the same chief groups of related compounds, namely fats, proteins, and carbohydrates, occurred in nearly all feeding stuffs. Thus the proportion of fats, proteins, and carbohydrates in the common feeding stuffs was established and feeds were compared and requirements stated on this basis. However, such an analysis did not take account of digestibility: this was, therefore, the next step.

Studies of digestibility soon made it obvious that the total quantities of fats, proteins, and carbohydrates in a feed were not a true measure of its worth to the animal, and so the emphasis passed to digestible fats, digestible proteins, and digestible carbohydrates. In other words, it was recognized that part of the feed is lost as faeces and is of no use to the animal.

The final stage was the recognition that even when a constituent of the

feed has actually been digested and absorbed into the body of the animal there may still be losses which vary under different conditions. Thus there are losses in the urine and breath and losses as heat from the lungs and skin. The digestible constituents cannot therefore be the final measure of worth, for this must be measured by what is left to the animal when all losses have been allowed for. It is this ultimate portion which enables the animal to maintain itself and to yield a product.

The measurement of productivity is relatively simple, in the sense that the live weight gain of a meat-producing animal or the gallons of milk from a dairy cow can be measured. The assessment of the needs for maintenance are less easy, but not impossible. If an animal yielding no product is made to fast, it will utilize its own body tissue in order to obtain the energy necessary for its life processes, and, very simply, it can be said that the energy so utilized must be exactly balanced by a supply of feed energy if the animal is just to maintain itself. Thus, by measuring the fasting metabolism of the animal, a value for its maintenance requirement is obtained.

In early literature there is not much evidence that the ancients had grasped any of these principles, although a few quotations and comments will indicate that they had an occasional glimpse of them.

As early as 2500 B.C. the Egyptians force-fed their fattening stock, as various pictures show, and this suggests that they realized that extra food gave fatter animals. Furthermore, the Hittite chariot-master Kikkuli wrote a treatise in 1350 B.C. which specifically dealt with the careful feeding of chariot horses. In his *Works and Days* Hesiod suggests that in winter, when the nights are long, oxen may be given half rations; and it is interesting to ponder whether this is the first glimmering of the concept that food requirements are related to activity and hence the shorter working hours of winter call for less food. Hippocrates expresses a similar idea but much more clearly when he says that "it is the nature of exercise to use up material, but of food and drink to make good deficiencies. . ." He also recognized that sometimes nourishment goes into being, but sometimes into both being and growth, which reminds us of maintenance and production. Meanwhile Aristotle took us some way in the study of body conformation and carcass quality, for he recognized that most of the fat in the animal body is laid down after the body has developed its bones and flesh.

Lucretius, writing in the first century B.C., also had something to say on the question of maturity and hinted at the balance of matter. In his *Nature of the Universe* he remarks:

"The things you see growing merrily in stature and climbing step by step the stairs of maturity—these are gaining more atoms than they lose . . . until

they have touched the topmost peak of growth. Thereafter the strength and vigour of maturity is gradually broken and age slides down the path of decay."

Finally, Columella, in the first century A.D., considered the question of quantities of food for cattle. He states that when oxen are tilling the ground they should receive 40 lb. of hay compared with 30 lb. when not doing so. Thus the conception of livestock feeding was advancing very slowly, but it was not becoming truly scientific, and it did not begin to do so until the beginning of the nineteenth century.

It has been suggested that about the middle of the eighteenth century the availability of a greater variety of feeding stuffs and the beginnings of a new forward surge in chemistry may have created the conditions for this development. Some authorities have also pointed out that stall feeding posed new problems in the utilization of feeds. Whatever the cause, it was Thaer in 1809, in his book *Grundsätze der rationellen Landwirtschaft*, who first put on record a table showing the relative values of different feeds. Thaer was a medical doctor who turned his attention to agriculture and finally became director of an agricultural institute at Möglin near Berlin, whilst his friend and helper, Einhof, was a chemist. Einhof began to study the nutritive materials in different feeds by treating them successively with water, dilute acid, dilute alkali, and alcohol. The residue was considered to be of no nutritional value, and therefore, by difference, the part which dissolved was the nutritive part. Thaer based his work upon Einhof's data and finally produced a set of relative values. For such a table to be of any use it is usual to adopt one particular feed as standard. Thaer, in selecting hay, states: "As hay is more known and more used than any of the other kinds of fodder, I shall make that article the standard by which all the others may be compared."

He gave the value of 100 to hay and expressed all other feeds in terms of his famous hay equivalents. Thus the hay equivalent of potatoes was given by Thaer as 200, indicating that 200 lb. of potatoes were equivalent to 100 lb. of hay. These values did not achieve much success, one of the chief reasons being that Thaer had selected for his standard one of the most variable feeds on the farm. Another reason was that the hay equivalent of a feed would vary according to the quantity and quality of the rest of the ration. Later writings made these difficulties quite clear, for soon most feeds had nearly as many hay equivalents as there were writers on the subject. However, before leaving Thaer it is important to note that it is generally implied that Thaer was seeking to establish the relative merits of various feeds as feeds, but a reading of Thaer's original book suggests that he was far more interested in the pro-



duction of manure and used Einhof's nutritive values because he believed that since fattening bullocks retained so little of their food, the more nutritious foods would produce a greater quantity of manure. Thus, he says: "There is no doubt that an accurate knowledge of the nutritive power of different vegetables would enable us to form some tolerably close calculations respecting the quantity of manure which they would produce." Furthermore, at no time did Thaer suggest a feeding standard for stock. It is of interest to note that in a tract published in London in 1812 a statement was made of the relative values of foods for human beings, giving a number to each food, rather on the lines of Thaer's system.

Meanwhile Magendie, in 1816, recognized the importance of the division into nitrogenous and non-nitrogenous food constituents, and Prout in 1834 divided the constituents of foods into three major groups: saccharine (carbohydrates), oleaginous (fats), and albuminous (proteins).

Boussingault, a French scientist, expressed the opinion in 1837 that nitrogenous compounds in the feed were the most important. In his *Économie Rurale*, published in 1843, he said: "The nutritious principles of plants and their products reside in their azotized (nitrogenous) principles, and consequently their nutritious powers are in proportion to the quantity of azote (nitrogen) they contain."

This idea was based on a number of points. Clover, lucerne, and sainfoin contained larger quantities of nitrogenous material than the more traditional fodders and also gave better results. Milk was rich in these nitrogenous compounds and was vital to the young animal building up its tissues. Horses broke down muscle when they performed work and hence required nitrogenous materials to repair their tissues. Finally, the Bramah oil press was invented at the end of the eighteenth century and linseed cake and decorticated cotton cake were increasing rapidly in popularity. These successful feeding stuffs were rich in nitrogenous material. Boussingault, therefore, put forward a table comparing foods on the basis of their nitrogen content, but admitted the need of other substances and went on to say that information on undigested materials would help even further. But, like Thaer, he proposed no feeding standard.

The great Liebig made many magnificent contributions to both pure and applied chemistry, but from our point of view his statement of the function of protein and other constituents was of great significance. He believed that fats and carbohydrates supported respiration and that proteins were capable of conversion into blood and thence into other tissues. In his book *Animal Chemistry*, which was published in 1842 and was a report to the British Association, he said: "... substances of which the food . . is composed may



be divided into two classes, into nitrogenized and non-nitrogenized. . . The former may be called the plastic elements of nutrition; the latter, elements of respiration."

We now know that these ideas were not entirely true, but even so the step forward was important. Liebig also expressed, as early as 1842, the opinion that the fat of the herbivorous animal must be derived to a great extent from the carbohydrate of the diet. Strong support for this came ten years later when Lawes and Gilbert of Rothamsted published the results of their pig experiments.

So far, workers had only dealt with the relative values of feeds, and no mention had been made of the needs of stock in terms of anything other than the feeds themselves. However, in 1853 Playfair, who had come under the influence of Liebig, gave a lecture at the Royal Institution in which he estimated diets for human beings in terms of nitrogenous and non-nitrogenous ingredients. He also discussed the requirements of some farm animals in terms of flesh-forming (protein) material. On the basis of chemical analyses Grouven, in 1858, in his book *Vorträge über Agrikulturchemie*, set forth the first feeding standards. He expressed the requirements for stock in terms of total fats, proteins, and carbohydrates. Thus a 1,000 lb. milch cow requires, per day, 2·84 lb. of crude protein, 0·84 lb. of crude fat, and 14·34 lb. of carbohydrate. However, this concept did not last long, for it was quickly becoming apparent that although digestion prepared the food for absorption, there were considerable losses of material in the faeces.

Nevertheless it would be wrong to dismiss the work of Grouven so briefly, for he was one of the great pioneers of animal nutrition. In the first place he recognized that live weight gains were not necessarily a true measure of the value of a food and that detailed studies of the gains and losses of protein and fat in an animal were required. Secondly, he recognized the great importance of chemical studies; and thirdly, he saw the importance of studies on fasting animals. A number of workers had studied the fasting animal before Grouven: for example, Magendie in 1852 had studied the fasting horse; but Grouven's intensive study of the fasting metabolism of cattle in 1864 was a model of its kind and preceded all similar work on cattle by over fifty years.

The concept of digestibility had begun its modern development when von Helmont (1577-1644) pointed out that gastric changes were something more than just grinding and mixing processes. Some of the major discoveries after this were as follows: Réaumur (1683-1757) performed experiments on birds and showed that gastric juice attacked some constituents of the diet but not others. By 1822 W. Beaumont (1785-1853) had shown that gastric juice contained some active substance which was responsible for much of the effect of

the juice; and two years later W. Prout (1785-1850) firmly established the presence of hydrochloric acid in gastric juice. However, there are other important aspects of digestion besides gastric juice. By 1856 Claude Bernard (1813-78) had studied the function of pancreatic juice as a substance which broke down starch, fat, and protein, and in 1854 Haubner showed that cellulose could be digested.

So the body of knowledge about the digestive processes grew, aided by information from a variety of sources. The next step was to obtain some quantitative facts about it in relation to domestic animals. The first true digestibility trials on farm stock were carried out at the Weende Experiment Station near Göttingen by Henneberg and Stohmann. They began their experiments in 1858, and in 1860 published *Beiträge zur Begründung einer rationellen Fütterung der Wiederkäuer*. In it they condemned Thaer's hay equivalents and gave results of their experiments. They also estimated, on the basis of experiments in which oxen just maintained their weight, the quantities of digestible nutrients which enabled the oxen to do this. These values were 0.57 lb. of digestible protein, 0.28 lb. of digestible fat, and 7.14 lb. of digestible carbohydrate per 1,000 lb. live weight per day. A second volume of their book came in 1863, and further experiments were performed by other workers under the general direction of Henneberg. Since then many thousands of digestibility trials have been carried out.

Meanwhile Emil von Wolff, the director of the Royal Agricultural College at Hohenheim, had been trying to modernize the Thaer system, by taking into account the fibre and the nitrogenous substances as well as the soluble material, but the publications of Henneberg and Stohmann convinced him that this concept was now outdated. In 1874 Wolff published his book *Die rationelle Fütterung der landwirtschaftlichen Nutztiere*, and in it he expressed the requirements of stock in terms of digestible fat, digestible protein, and digestible carbohydrate. To do this he examined all the existing records of feeding trials and converted the requirements into terms of digestible constituents. His standard for a 1,000 lb. milch cow was 2.5 lb. of digestible protein, 0.4 lb. of digestible fat, and 12.5 lb. of digestible carbohydrate per day. Wolff's standards were, from then on, published annually in Menzel and von Lengerke's Agricultural Calendar, and continued to be published with modifications until 1896. It should be noted that Wolff's chief standard was for a cow giving 20 lb. of milk but he made no suggested modification for other yields.

About 1880 Armsby in America had embarked on a translation of Wolff's book, but ended up by writing a first-class account of all the main researches on this subject up to that time. This is his well-known *Manual of Cattle*

*Feeding*. Then in 1895 Cousins published an English translation of Wolff's book under the title of *Farm Foods*.

In all this work, despite Grouven's study of the fasting animal, there was no recognition of the fact that food has two functions to fulfil, namely, to keep going the vital processes of the animal, i.e. maintenance, and to provide for production. Professor Julius Kuhn was director of the Agricultural Institute at Halle, and he criticized all the earlier work on this basis. In his book *Die zweckmässigste Ernährung des Rindviehs*, published in 1887, he put forward two ideas. First, that foods provide for maintenance and production, and secondly that the cow has a limited capacity to deal with the dry matter in a ration. His second proposition stressed, for the first time, the importance of bulk. His first point is usually accepted as the first statement made on the idea of maintenance and production rations. It is, therefore, of considerable interest to note that not later than 1843, i.e. nearly fifty years earlier, Veit had, in his *Lehrbuch der Landwirtschaft zum Gebrauch in Landwirtschaft- und Gewerbs-Schulen*, stated quite clearly that fodder could be divided into conservation and melioration fodder, and that the one served for maintenance and the other for production. The actual statement reads as follows: ". . . conservation fodder is the quantity of fodder necessary to keep the animal alive in his present state, and melioration fodder is the quantity necessary to be employed in improving his condition."

In 1897 Lehmann, of the Berlin Agricultural High School, modified Wolff's standards in the light of Kuhn's criticisms, and in the form of Wolff-Lehmann Feeding Standards, they continued to be published in the Agricultural Calendar, and were used throughout the world. The step had now been taken to recognize that the quantity of a product clearly modified the needs of an animal, but in 1903 Haecker, at Minnesota, advanced this concept even further by pointing out that in the case of milk its percentage of fat, that is, its quality, will also influence the needs of the animal. On this basis he put forward new standards, but, of course, they were still based on digestible nutrients.

Despite these advances the nutritionists and the agricultural chemists were not satisfied. In 1842 Mayer had put forward his law of the conservation of energy. Helmholtz generalized it five years later, and this had repercussions on all branches of science, not excluding nutrition. As early as the sixteenth century it was recognized that losses, other than faeces and urine, occurred from the body. This loss was referred to as insensible perspiration. Sanctorius, a professor in the Medical School at Padua, carried out many experiments on himself to try and measure this, and described them in his book *De medicina statica aphorismi*, published in 1614. In a sense these were the

first rudimentary balance experiments. But it was Boussingault who performed the first true balance experiments in 1839, when he investigated the intake and outgo of carbon, hydrogen, oxygen, nitrogen, and ash in a dairy cow. He realized, however, that he had not taken the gaseous excreta into account. By 1849 Regnault (1810-78) with Reiset was using a respiration chamber to measure gaseous exchanges in the animal, and in 1852 Bidder and Schmidt published their classical *Die Verdauungssäfte und der Stoffwechsel*, in which the idea of a complete balance-sheet of the material incomings and outgoings of an animal was set down. From 1857 onwards Voit, who had been a pupil of Liebig, and who is regarded as the founder of modern nutrition, developed these ideas still further. He and Pettenkofer built a much better respiration chamber in 1866, and, with others, they considerably extended the concept of metabolism. Furthermore, in 1887 Voit suggested the amounts of fat, protein, and carbohydrate required daily by human beings. Lavoisier and Seguin showed as early as 1789 that respiration and combustion are similar processes, i.e. both consist of the burning of organic compounds in oxygen to give energy, including heat, but it was not until 1893 that Rubner began to use his animal calorimeter in which it was possible to measure heat output as well as material excreta. This was a great step forward, and, in addition, it enabled him to relate the maintenance requirement of an animal to its surface area. His results were published in 1902 in his *Die Gesetze des Energieverbrauchs bei der Ernährung*. And at about the same time Atwater and Armsby in the United States began to use the animal calorimeter for their work on human beings and cattle respectively.

The great pioneers Henneberg and Stohmann lost no time in carrying out respiration experiments on farm animals, but unfortunately Henneberg's death put an end to them. However, Gustav Kuhn began similar experiments at Möckern, and in 1893 he was succeeded by Oskar Kellner. From 1893 onwards Kellner continued the work, and in 1905 he published his book *Die Ernährung der landwirtschaftlichen Nutztiere*. This took the idea of feeding to its logical conclusion, for Kellner carried out carefully controlled balance experiments in which he determined all forms of material loss from the animal: faeces, urine, and breath. In this way what finally remained in the animal represented that part of the ration which was truly of value to it for productive purposes. The value of 100 lb. of any feeding stuff was then equated to so many pounds of starch, and thus arose the famous "starch equivalent." This represented the productive energy of the ration whilst in addition Kellner gave a protein value in terms of digestible true protein. In actual fact Kellner's work was more fundamental than this,

because he established the producing value of pure digestible fat, protein, and carbohydrate, irrespective of the feeds in which they occurred. From these fixed values he was able to calculate the theoretical starch equivalent of any feeding stuff, and then by applying a correction for fibre, he obtained an actual value. It is, perhaps, important to point out that Kellner used fattening bullocks in his experiments, but that in 1911 he modified his ideas to cover milking cows as well. Thus starch equivalents were calculated for all feeding stuffs and the requirements of all classes of stock were expressed in the same terms. It became a popular system and forms the basis of present-day methods of scientific rationing in this country.

A little later than Kellner, Armsby, in America, attacked the problem from a somewhat different angle, using the animal calorimeter, and calculated what he called "Net Energy Values." However, fundamentally, it was the same basic idea as Kellner's.

Since this time a number of refinements and modifications have been suggested, but they do not carry us beyond the basic concept of Kellner and Armsby. This concept is the most logical idea, but its very accuracy and its variations with changing conditions, though predictable, make it in many ways unsuitable for farmyard approximations. And, in fact, in America nutritionists have turned back to a modified concept of the digestible nutrient idea of Wolff. However, this is not necessarily a retrograde step, because many thousands of digestibility trials have been performed against only a very few balance experiments, and the greater amount of information, plus an equal accuracy of determination, may well offset the lesser accuracy of the principle in a problem of this kind.

We cannot leave this historical outline without a brief mention of a system which developed away from the main line of events, namely the Scandinavian system. Fjord was the originator of this idea, and, according to Wilson, "... he was not an agriculturist. Nor was he a chemist. But he was a man of unusual ability and common sense." The work is supposed to have begun more or less by accident when Fjord was asked to settle a serious dispute. About 1880 the milk separator was being used on Danish farms, and it was being said that separated milk was much inferior to skim milk as a feed for pigs and calves. Fjord decided to carry out experiments to test the relative merits of the two milks. His method was recognized as sound, and, obviously, once started there was no end to this kind of problem, so the work of comparing feeding stuffs grew. In 1887 he published his results, based on many feeding trials, and from these results he worked out a new system of equivalents on similar lines to Thaer's. However, he was more fortunate than Thaer because he chose cereals instead of hay for his unit. This unit was



fixed at half a kilogram of a fifty-fifty mixture of barley and oats. All food values and all requirements of stock were expressed on the basis of this unit. Others continued the work, and in 1908 Hannson suggested one kilogram of barley as the new unit. This new unit was adopted throughout Scandinavia in 1915. The method has certainly proved successful in these countries, and it is usually maintained that this is owing to their smaller variety of feeding stuffs and their more uniform system of feeding.

Finally, comment may be made on the general concept of feeding standards. Clearly, for any system to work on the farm, it must involve no complicated mathematics. To express the value of a food in terms of one number renders calculations easy, to express it in terms of two numbers renders calculation more difficult, and progressively so with each additional number. Secondly, feeding standards do not take into account the mineral constituents of a ration, or the vitamins, or its palatability, for to do so would make their use exceedingly complex, but nevertheless these items are important to the animal. Furthermore, no matter how correct the values may be, they are always statistical averages. Oats have a starch equivalent of 60, but obviously not all samples of oats will have this value, which is only an average. Similarly, if the daily need of a 1,000-lb. cow for maintenance is 6 lb. of starch equivalent, this does not mean that every 1,000-lb. cow has this requirement. Therefore, however refined our scientific rationing may become, there will always be the need for an expert stockman to watch the individual needs of his animals, and this will continue until we finally rule out of our farm animals those biological variations which create individuality. Until then, the King of Persia, as quoted by Xenophon in the fourth century B.C., will be right, for he said that it is the eye of the master which makes the horse fat.

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## Notes and Comments

### THE BRITISH AGRICULTURAL HISTORY SOCIETY

The fourth Conference and Annual General Meeting of the Society was held at Florence Nightingale Hall, the University of Nottingham, on Thursday 12 and Friday 13 April 1956. It was attended by about thirty-five members. The Conference began on the Thursday evening with an illustrated talk by Mr John Higgs, Keeper of the Museum of English Rural Life, the University of Reading, on problems of identification encountered at the Museum. There were two papers on the Friday: the first, by Mr Malcolm Gray, Lecturer in Economics at the University College of North Wales, on the Consolidation of the Crofting system from 1750 to 1850; the second, by Dr W. G. Hoskins, Reader in Economic History at the University of Oxford, on Sheep-Farming in Saxon England. In the afternoon members were conducted round the open fields of Laxton by Dr J. D. Chambers and the Bailiff of the Manor.

The President, Sir James Scott Watson, took the Chair at the Annual General Meet-

ing which was held on the Friday morning. The retiring officers were re-elected, and Miss H. A. Beecham, Mr G. Ordish, and Dr Joan Thirsk were elected to the Executive Committee in place of Mr W. E. Minchinton, Mr F. G. Payne, and Mr R. Trow-Smith who had retired.

The Chairman of the Executive Committee, Mr Alexander Hay, was able to report that the Society had had a good year and that membership stood at four hundred and ten. The Treasurer, Professor Edgar Thomas, reported that the balance in the bank as at 31 January was £226 11s. 7d.

At a meeting of the Executive Committee it was decided to hold the usual one-day Conference with the Association of Agriculture in London on a Saturday early in December, and the Annual General Meeting in Bristol in April 1957.

### CENTENARY OF THE CURTIS MUSEUM

In 1955 the Curtis Museum at Alton in Hampshire celebrated its centenary. The story of this active local museum has been set

(continued on page 120)

# Estate Management in Eighteenth-Century Kent

By G. E. MINGAY

DOCUMENTARY evidence of the way in which landlords actually managed their estates is invaluable in broadening our knowledge of eighteenth-century agriculture. A modern historian, Prof. H. J. Habakkuk, in his well-known article on landownership has given us a striking picture of estate development in Northamptonshire and Bedfordshire and has stimulated interest in the growth of estates elsewhere.<sup>1</sup> Moreover, the contemporary accounts of estate management provided by such writers as Edward Laurence and John Richards,<sup>2</sup> although valuable, indicate what landowners ought to have done rather than what they actually did, and it is in ascertaining the latter that estate records are so important. But quite apart from its value in adding to our historical knowledge, local estate material is interesting in itself: we can see what sort of estate problems might occur and how they were dealt with; we realize what might actually be involved in being the lord of an important manor; and we can obtain an idea of the relationship between the landlord and his steward. The material discussed below is drawn from Sir Jacob Bouverie's estate records, now deposited in the Kent Archives Office. The most interesting of these records is Sir Jacob's "Coppy Book of Letters to my Steward in the Country begun the 17th July, 1716."<sup>3</sup> The book covers only a brief period of six years, but this is more than compensated for by the fascinating details the letters contain. Although few of the steward's letters have survived, the view of estate matters pro-

vided by this correspondence is not so one-sided as might be supposed. On the contrary, owing to Sir Jacob's convenient habit of including the gist of his steward's letters in his replies, we can obtain a complete and accurate picture.

Sir Jacob's estates in Kent included the fishing town of Folkestone, of which he was lord of the manor, and a number of medium-sized farms, mainly arable in character, situated in and around Folkestone. The estates brought in some £1,000 a year; the principal farms together totalled about 2,900 acres. It seems that Sir Jacob was much confined to London, mainly by reasons of business and attendance at Westminster, but also by illness, so that the day-to-day administration of the estates was in the hands of his steward, Henry Barton of Folkestone. The evidence shows that Sir Jacob, although an absentee landlord, none the less exercised by means of a constant stream of correspondence a close supervision over all aspects of his property. Indeed, so strict was the landlord's control that his steward must often have wished for more room for manoeuvre and for an employer less hard to please. Sir Jacob was the most exacting of landowners: at one time he would tell Barton that he was prepared to rely upon his opinion, that he should use his own initiative and knowledge, while at another he would upbraid him for some transaction that had miscarried: "I would have you honestly to consider how prejudicial to my interest your management about that Farme hath been, you

<sup>1</sup> H. J. Habakkuk, 'English Landownership, 1680-1740', *Economic History Review*, Series I, x, 1940, pp. 2-17.

<sup>2</sup> E. Laurence, *The Duty of a Steward to his Lord*, London, 1727; J. Richards, *The Gentleman's Steward and Tenants of Manors Instructed*, London, 1730.

<sup>3</sup> Kent Archives Office, Radnor MSS., U 270, C1. Sir Jacob Bouverie, a brother of the Earl of Radnor, represented New Sarum in parliament, and in 1747 was created first Viscount Folkestone. He died in 1761.

turned out my old Ten<sup>t</sup>. Blowne, run me into a great expense in repairing and new building part of the House then on a promise of a lease for 21 years that sunke my rent £30 p. ann. and throw in the first years rent free to him also, and now you will not settle that neither, though you have caused such losse to me but would go againe hunting for another Ten<sup>t</sup>. more I think for your own interest or humour than any honest Truice [loyalty] to me. . ."

The unfortunate steward was constantly instructed to inspect the farms and especially to watch the progress of new buildings and the quality of repairs, to bear in mind and keep down his rent arrears, to remember to hold the courts at the usual times, and on occasion to canvass tenants and their friends in favour of the parliamentary candidate supported by Sir Jacob's faction. He would be admonished: "whilst you undertake my business act in it and bestir yourself the best possible," and Sir Jacob would frequently end his letters with an injunction to "expedite my Concerns" or to "transact honestly and diligently all my Affairs."

His complaints of Barton's conduct were so frequent and were expressed so virulently that one is tempted to wonder why he continued to retain so apparently unsatisfactory a steward. Among other things, he accused Barton of disregarding his instructions and of doing "only what your own humour and Self Interest dictates to you," of retaining estate money in his own hands for unnecessarily long periods, and of not keeping this money separate from his own. He constantly protested against delays in completing the accounts and refused to take Barton's excuses. "You write againe about your Study Chimney, which to be sure may be very easily rebuilt again, and I cant see why that should at all hinder your bringing your Accounts to a head, it is a Shame you had not done it before but you will go on to trifle with me in your own humour. You lately said you were behind hand in your business for want of a Clerk, and whose fault is it, that you have not taken assistance in all this time."

On the other hand, he would sometimes

show his steward some unsolicited kindness and consideration. When Barton's daughter Frances was suffering from an unusual ailment, he several times consulted his own surgeon (and paid the fees) in order to obtain good advice for her treatment. "I am indeed very sorry for your daughter Frances ill state of Health, to have a Swelling over her Eye, broke into holes, and dressed with taints [spots] as you mention is a melancholy case and requires very good Advice and Assistance."

Sir Jacob showed a somewhat similar inconsistency in his dealings with his tenants. He could be hard-hearted and tight-fisted: arrears of rent (which appear to have been particularly heavy in 1716 and 1717) he regarded, not unnaturally, with impatience, and after they had accumulated for a year or two he would instruct Barton to make a seizure on the tenant's goods when the next harvest was in. In 1716 he was particularly incensed to hear that the insolvent tenant of his Combe farm had attempted to cheat him by a prior disposal of his farm stock and goods among the neighbouring farmers. Sir Jacob tended to suspect that his tenants were having the best of the bargain and frequently urged Barton to try to raise their rents. But again he would send his good wishes and some kind words on hearing of a tenant's illness or of an accident, as when his bailiff in Folkestone was kicked by a horse: "I am glad Verrier walks about againe." Moreover, it was possible for the steward to influence him on behalf of an old tenant. Barton wrote: "Mr. Ladd having a Bible in his hand when I acquainted him on what conditions you would be pleased to grant him a new Lease of that farm he was so moved he offered to fling away the Book saying my Landlord told me he would never turn me out but I find I must be undone if I stay and when I offered to speak he wished he had never known me. . ." Barton explained that it would be possible to find another tenant, "but that would bring the Old Mans Gray Haires with Sorrow to the Grave." At another time, Sir Jacob noted in his estate book that he had planned to join

two farms together, pulling down one of the farmhouses, "but Castle being an old Tenant, and advancing £2 p.a. I did not do it, but some time or other it may be right to do so."<sup>1</sup>

Great care was taken in the selection of tenants, especially as the farms were let on leases for twenty-one years. Sir Jacob would not accept his steward's nominee without a recommendation from the prospective tenant's old landlord in regard to his character, ability in husbandry, and general reliability. For example, in 1716 he wrote to Barton: "You say an agreement is made between ye Widdow Ladd tenant of my Standen Farm and her eldest son for his taking that farm if I consent to it which I cannot resolve to do without further assurance of his ability and diligence and of his general understanding for Husbandry, for ye Farme is undoubtedly a great pennyworth and I would not have it turned into Slothfull or negligent hands."

An interesting correspondence about the selection of a new tenant for the South Hawkinge farm reveals the kind of negotiations which preceded the leasing of a farm. One candidate named Allen offered a rent of £50, but he was not known to Barton, who was instructed to write to his last landlord for "a character". Another candidate, Hatcher, an experienced farmer already known to Barton, offered only £45. This situation led to Sir Jacob's writing as follows: "You say you had been some hours with Hatcher again, but could not get him up to £50 per Annum for my South Hawkins Farm unless I should abate considerably of the first Years Rent, which I think would be no Advance at all, on t'other hand you heard none speak amiss of Thomas Allen, only that some question whether he had Sufficient Substance of his own. I am of your opinion to like Hatcher the season'd Man best, but £5 difference in the Rent they'll give is considerable, therefore why cant you get said Hatcher up to £48."

The outcome was that Hatcher eventually agreed to £48 and obtained the farm. The disappointed Allen on Barton's suggestion was given a present of a half-guinea for his part in driving up the rent and in order to mollify his old landlord who had recommended him to Sir Jacob.

It has already been mentioned that Sir Jacob was anxious to raise the level of his rents. Two or three times in the boom of 1720 he told Barton that land had recently almost doubled in value, forty-five or fifty years' purchase now becoming common, and that in new leases opportunity should be taken of raising rents. It appears from the evidence, however, that the farms were already fairly high-rented and it proved impossible just then to make any substantial rent increases. At the same time it was becoming more difficult to sell the produce of the landlord's woods. This development caused Sir Jacob to remark in November 1719 that "our Buyers [of wood] are now chiefly poor labourers and bad paymasters, and our Principal Farmers burning Coals."<sup>2</sup> The sale of wood for hop-poles was also subject to depression: in 1721 Barton was warned not to sell any wood for hop-poles unless he got a fair contract first, "for, as I am told, Hops sell at a very low price this Year, I doubt they [the hop-growers] are under discouragement." The solution was to increase the amount of woodland leased with the farms, making suitable increases in rent, "which is a very good way as wood is a mear drug." This change was duly noted in the estate book: "N.B. The Tenants when wood was first lay'd to the farms had no more than their exact quantity, but Wood being fallen now very much, I let them have enough to make it a reasonable pennyworth to them."<sup>3</sup>

The covenants included in Sir Jacob Bouverie's leases show that he was considerably advanced in this aspect of estate management. Apart from clauses dealing with pay-

<sup>1</sup> K.A.O., Radnor MSS., U 270, E 10.

<sup>2</sup> Defoe noted that coal was ousting wood as a fuel.—D. Defoe, *A Tour Through England and Wales*, Everyman edition, I, pp. 100-1.

<sup>3</sup> K.A.O., Radnor MSS., U 270, E 10.

ment of rent, responsibility for repairs, and the crops to be grown, it was laid down that the farmhouse was to be occupied by the tenant "or some other person to be approved of by the landlord," that all dung was to be used on the farm, and that the breaking up of pasture without permission was subject to a fine of £50. In addition, the number of acres that might be sown with oats in the last year of the lease was restricted and a proportion of the land was to be left fit for sowing wheat, the outgoing occupier having the use of the barn and farmyard for four or five months after the expiration of the lease. Exceptionally, a farmer might be instructed to fold a hundred sheep on his arable and to use clover in his crop rotation. Manorial survivals are to be seen in the requirement in some leases that a tenant must perform two days' work with his team (sometimes in order to fetch materials for the repair of his farm), but he could not be obliged to go more than eight miles off. Some tenants were also liable to entertain and lodge the lord and his bailiff and servants on the day before the manorial court was held, and to provide a dinner and lodging on the day itself. The possibility of loss of crops through erosion on the coastal farms was met by providing that the landlord should pay tenants 17s. 6d. per half-acre by way of compensation "for all land that shall fall over the cliff."

The transmission of the rents to London gave rise to some difficulties. Sometimes cash was entrusted to the London carrier or to tenants who were visiting the capital, but more frequently an inland Bill of Exchange was sent by post. In 1722 Sir Jacob informed Barton: "I have received yours of the 22nd Do. with a Bill drawn by Christopher Wood on Francis Gillow for £40 payable to Daniel Wyburne [a tenant] endorsed by him to you, and by you to me, to which said Gillow hath promised paym<sup>t</sup> next Monday."

It was a common practice, however, to send remittances via the captains of Folkestone fishing vessels when they were taking their cargoes up to London. A Mr Deane of Billingsgate received the cash or paid "the Fisherman's Bills" to Sir Jacob. This channel however, was subject to serious delays when the fishing fleet was out for the herring season. Moreover, it was necessary to give the mariners a gratuity, and this caused the careful Sir Jacob to look for an alternative route. "I see you had sent me £25 in Money by John Baker, Master of a Boat, that was coming up hither to Battle Bridge, which I shall attend to Receive, and what more you intend me by such like Opportunities, but I am sorry to see the Master Boat Men want such Courtship, and a sort of Premium as you mention for their bringing it, it would be better that I fix on somebody at Dover to receive it, and send it me by Shipping. . ."

Folkestone at this time was "eminent chiefly for a multitude of fishing boats . . . employ'd in catching mackerel for the City of London," as Defoe put it.<sup>1</sup> The town was described as "miserable in its Appearance" but there were "above Three Hundred Sail of Fishing Boats belonging to it."<sup>2</sup>

Although there was a mayor and corporation, Sir Jacob, as lord of the manor, still retained numerous rights and responsibilities in "his towne of Folkestone."<sup>3</sup> In his estate book, for example, it was specifically noted that the tenant of the King's Arms Farm had "always been the Bailif and Cryer of my Courts, and Keeper of the Jayl, which is in his house, as my Deputy . . . and the Tenant always finds security for as far as £300 to be answerable to me for any Escapes that shall be made out of the Jayl. . ." The perquisites of the bailiff were put down as follows: "Perquisites of Jayl-Keeping: He is to have for an Arrest 1s. 8d., for going into jayl 3s. 4d., for a discharge from it 6s. 8d.

<sup>1</sup> Defoe, *op. cit.*, 1, pp. 122-3.

<sup>2</sup> J. Macky, *A Journey through England*, London, 1722, 1, p. 54.

<sup>3</sup> Folkestone was a subordinate 'limb' or 'member' of the Liberty of the Cinque Ports, and such 'limbs' usually had a lord of the manor. See S. & B. Webb, *English Local Government: the Manor and the Borough*, London, 1908, 1, pp. 308, 338, 373n., 379n.



N.B. I pay 2s. 6d. towards burying every corpse thrown ashore by the sea in Folkestone manor. I likewise pay 2s. 6d. for every Porpus to my Bailiff, and all Royall Fish such as Whales, Grampus's, Sturgeons etc. belong to me.

"His fee for every Wreck is 6s. 8d. all charges to be pay'd by the Owner, if no Owner by the Lord. Waifs, Strays, etc: to be brought to him and He to be pay'd for his Trouble by the Owner, if no Owner by the Lord."

Other fees payable to Sir Jacob's bailiff included tolls at fairs held in Folkestone: "For every Tilt [tent or awning] 2s. 6d., for every other Trussell [trestle] or Stand without Tilt 1s. The Bailiff is to find the Materials but not the Tilts. Every Pedler without stand pays 3d. and all sorts of games 6d. each."

These manorial rights and perquisites were not by this time mere formalities as might be supposed. There were frequent disputes over shipwrecks, washed-up bodies, and smugglers. Indeed, the role of lord of this particular manor was by no means an uneventful one. Sir Jacob was infuriated to hear that neighbouring towns had taken the liberty of removing the anchors and cables (especially as the value of this gear was often considerable) which he claimed by manorial right from ships wrecked in his lordship. On one occasion Barton was only just able to catch one shipwrecked captain "as he was riding in a hurry from Hythe to Folkestone" to get him to agree to a money compensation in lieu of losing his anchor and cable.

The east Kent coast was notorious for smugglers who specialized in the illicit import of French spirits. From time to time this gave rise to troublesome incidents. In January 1720 Sir Jacob wrote indignantly to Barton: "You say two Corps, supposed to be french smugglers, were cast a Shore at Folkestone, nothing saved from them but a pair of Silver shoe buckles and brass money to the value of fifteen pence, they being buried in their Cloathes, which my Bailiff had directed should be done in any waste soil, and for that purpose gave half a Crown for each Corps for

my Account as Lord of the Mannor as has been usual, but our Folkestone Mariners you say buried them in their Cloathes in our Church Yard, the Priest and Clerk officiating and that the latter demanded Fees, to which I would have neither Verrier [the bailiff] nor you give any Answer or Satisfaction, nor to part with a farthing more than what he gave as above according to Custome of my Mannor, for I will have no Innovations, for I think the Marriners intruded in meddling with what did not concern them, unless they take my Right to be their own."

In November of the following year the correspondence between Sir Jacob and his steward recounts another interesting smuggling incident: "some half Anchors of Brandy being Anchored off at Sea, some soldiers as Assistants to a Customes House Officer went off with him to seize it, and that in the Evening of the same Day, three Smugglers by name Fildroe, Gittings and Smith came one after another into the Quarters of Quinton one of the Soldiers, and there arose a Quarrell with Quinton . . . and that Quinton did make a thrust with his Bayonet into the body of the said Smith a little below his Navel, of which wound you say he died the 7th Do. in the morning." The soldier responsible for the smuggler's death was tried and acquitted, it being held that Smith did not die of the bayonet wound. A month later Sir Jacob found cause to complain of the treatment of another body cast ashore, pointing out that "the Salvors sharped a Ring and whilst you and my Bailiff Verrier were at Hythe Fair, they stript him of his Cloathes, putting him into his Coffin only with a few Shavings, and so buried him, I think it was too rough and unreasonable dealing."

In 1720 further difficulties arose with the Folkestone fishermen over the destruction of a harbour breakwater by a February gale. Barton reported that the large rocks and stones from the breakwater had been washed on to the beach and were preventing the fishermen from launching and beaching their boats. Sir Jacob's response was to offer the fishermen "a Tub of Strong Drink" if they



would put the stones back themselves. This offer the fishermen evidently regarded as inadequate, and Barton replied that they were "clamorous" for more assistance and claimed that the stones could only be secured in position by large timbers. Sir Jacob received this opinion with indignation, saying: "the Expression of the Fishermen's continuing Clamorous was not well used towards me who had made a present of the foresaid offer, and if the Stones were returned where they were drove from, they might remain for very many, many Years, as they had lain before, towards the Security of the Stade, and I desire you to acquaint Mr. Mayor, that as I am Lord of the Mannor, I esteem it my Right to proceed in the liberties of it, as I shall think well of, & I will remove the Stones or not, and do what I please about the Stade, and if the Fisher Men don't like it, let him and them represent to me by a Petition what they would have done, for the Advantage of the Town & Corporation and then I shall resolve what may be best to do in it." Eventually the matter was settled by Sir Jacob's allowing the mayor and corporation to dispose of the stones on the payment of 2d. a load as an acknowledgement to the Lord.

One final detail which serves to complete this account of an early eighteenth-century estate concerns the Folkestone post office. The removal of the postmastership from his tenant at the White Hart was a distinct injury to Sir Jacob's seigniorial pride. He told Barton: "I think I must move in it, for it bears the face of intending a Slight or Neglect towards me & my Tenants, and I desire you to acquaint me who it is thought is the Person that promoted this alteration, without the least intimation of it to me." Having failed to get a postal official to call on him, Sir Jacob went himself to the General Post Office and, as he told Barton: "was surprized to hear

there, with what saucyness William Everenden [the former Folkestone postmaster at the White Hart] had wrote to them to remove our Post Office from him, and in the end, that he work'd himself up to write that if they did not do it, the next time the Bagg came to him, he would throw it into the Street (very ill surely) so they got Jenking Hague of Folkestone to take it upon him, & that it is now fixed there. Everenden never wrote to me one Word at all about this Matter, neither did you before the 19th of last Month, when you mentioned the Office was removed into Fisheman Street, that made it too late to apply much in it, and looks as if both had an Indifferency about it, and now upon the base Behaviour of Everenden as abovesaid that occasioned its removal, I will not hereafter do it, unless he first gets it under Hagues hand, that in general he is willing to resign the Office, and that he the said Everenden comes up to Town to make Personally his Submission to the Post Master General, or that he doth it by way of Petition. . . ." Subsequently, Sir Jacob suggested that the magistracy and principal inhabitants of Folkestone should send a petition to the Postmaster General requesting the return of the post office to the White Hart so that he would then "have a handle to apply again." However, no petition was forthcoming, and Sir Jacob unwillingly admitted defeat, commenting irascibly: "After all the concern you expressed for yourself and Others inhabiting the upper end of our Town upon the General Post being removed into Fisherman Street, I observe you now say, you all acquiesce therein, so shall think no more of it." None the less, he subsequently took the opportunity of pointing out that letters were arriving in London a day late as the new postmaster was not sending "the Bagg away at the time it used to be."

# Work in Progress

Compiled by JOAN THIRSK

The following list does not lay claim to completeness. It has been compiled from the particulars given in response to a letter circulated to universities, local history societies, and local record offices. It is hoped to publish similar lists from time to time, and the compiler will therefore be glad to receive any information concerning changes of subject and omissions from this list.

- ABERG, F. A., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berks.*  
Roman agriculture and settlement in the Hampshire area.
- ADAMS, R. H., *The Poplars, Midford Road, Bath, Somerset.*  
Bibliography of land drainage, irrigation, reclamation of marsh, fen, and tidal lands, and warping in Great Britain and Ireland.
- AGATE, R. G., *12 Wilton Grove, Wimbledon, S.W.19.*  
The Surrey evidence bearing on the causes, nature, and consequences of the rioting and disturbances in certain agricultural areas in the winter of 1830-1.
- AGERSKOW, Miss MARGARET, *1019 Anlaby High Road, Hull, E. Yorks.*  
The reclamation of Knaresborough Forest (Leeds M.A. thesis).
- ALLISON, KEITH J., *Leeds University.*  
Sheep farming and Norfolk agriculture, 1450-1700.
- ATTWOOD, E. A., *Department of Agricultural Economics, University College of Wales, Aberystwyth.*  
The rate of change in the structure of British agriculture, 1870-1914.
- BARLEY, M. W., *Department of Extra-mural Studies, Nottingham University.*  
Rural housing.
- BARRETT, JOHN, *Clarence Lodge, Hampton Court, Surrey.*  
Food and its adulteration in the nineteenth century (London Ph.D. thesis).
- BARNES, F. A., *Department of Geography, Nottingham University.*  
A historical and regional geography of Anglesey (London Ph.D. thesis).
- BATLEY, Mrs L., *Department of Latin, Sheffield University.*  
Eighteenth-century manorial history of Sheffield, Rotherham, and district.
- BEARINGTON, F., *39 Snow Hill, Maulden, Bedford.*  
A general study of market gardening in eastern and central Bedfordshire.
- BERESFORD, MAURICE W., *Department of Economics and Commerce, Leeds University.*  
Pre-Parliamentary enclosure, 1597-1750.
- BLANCE, THELMA, *Department of Geography, Aberdeen University.*  
Agriculture in the Blair Athol district.
- BUCHANAN, R. H., *Department of Geography, The Queen's University, Belfast.*  
Changes in agriculture and settlement in Co. Down during the eighteenth and nineteenth centuries.  
The 1801 crop returns in Northern Ireland.
- BUCHANAN, R. H. and PROUDFOOT, V. B., *Department of Geography, The Queen's University, Belfast.*  
The history and present status of Conacre in Ireland.

- BUCHANAN, R. H. and JOHNSON, J. H., and PROUDFOOT, V. B.  
An archaeological investigation into the development of the pattern of Irish rural settlement from the 1st millennium A.D. to the eighteenth century.
- BURKE, T., *Department of Geography, Birmingham University*.  
A geographical study of population changes in County Cork since c. 1750.
- BURLEY, K. H., *London School of Economics and Political Science, London, W.C.2*.  
Economic and social history of Essex under the later Stuarts (London Ph.D. thesis).
- CARTER, VICTOR BONHAM-, *Langaller Farm, Brushford, near Dulverton, Somerset*.  
The history of the Dartington Hall Estate, Totnes, Devon, since 1925.
- CHAMBERS, J. D., *Sub-department of Economic History, Nottingham University*.  
Agriculture and population changes in the Midlands.
- CHEW, Miss H., *Department of Geography, Liverpool University*.  
Agricultural changes in England and Wales during the last two decades.
- COATES, BRYAN E., *Department of Geography, Leeds University*.  
A study of the contribution made by parks to the evolution of the landscape of Yorkshire (Leeds M.A. thesis).
- COPPOCK, J. T., *Department of Geography, University College, London*.  
Some aspects of the agricultural geography of the Chilterns, 1866-1951.
- CROSSLEY, J. C., *Department of Geography, University College, London*.  
The evolution of the rural landscape of Middle Wharfedale.
- DAVIES, Mrs C. S., *Durness, Robin Lane, Sutton, Macclesfield, Cheshire*.  
The history of the manor of Withington, Manchester. Enclosure of the open fields and common.
- DAWSON, E., *Department of Agriculture, Leeds University*.  
The Yorkshire wolds: the pre-enclosure farming system and its transformation into the four-course system.
- DIGBY, ALAN, *Department of Geography, Leeds University*.  
The evolution of land use and settlement in Upper Ribblesdale since late medieval times (M.A. thesis).
- DODD, J. PHILLIP, *Hampton Loade, Alveley, Bridgnorth, Salop*.  
Agriculture of the West Midlands in the nineteenth century.  
Agriculture during the Napoleonic Wars in Yorkshire, Lancashire, and the Midlands.  
Shropshire agriculture in the nineteenth century.
- DOUCH, ROBERT, *Institute of Education, Southampton University*.  
Some aspects of the history of agriculture in the Isle of Portland, Dorset.  
Bibliography of the local history of Hampshire and the Isle of Wight.
- DREW, Lieut. Col. CHARLES D., *Curator and Secretary, Dorset Natural History and Archaeological Society, Dorset County Museum, Dorchester*.  
Materials for an early fourteenth-century map of Dorset.  
Manor patterns.
- DURY, G., *Department of Geography, Birkbeck College, London*.  
Agriculture and land use in the Channel Islands in the late eighteenth century.
- ELLIOTT, G., *Department of Geography, Liverpool University*.  
The development of the agricultural landscape in Cumberland, 1600-1850.

- EMERY, FRANK, *Department of Geography, University College of Swansea*.  
 West Glamorgan farming, c.1580-1620.  
 Agrarian change in Gower, 1500 onwards.  
 'Georgical' work in this country, 1650-1750.
- EVANS, Professor E. ESTYN, *Department of Geography, The Queen's University, Belfast*.  
 The import of improved agricultural implements and techniques from England to Ireland.
- EYRE, S. R., *Department of Geography, Leeds University*.  
 The limits of improved land and common pasture in N. Derbyshire from medieval times.
- FARMER, D. L., *Exeter College, Oxford*.  
 An examination of price fluctuations in certain articles in the twelfth, thirteenth, and early fourteenth centuries.  
 The Duchy of Cornwall estates in 1337.  
 Anglo-Saxon charter boundaries.
- FARRA, Miss M., *Department of Geography, Bedford College, London*.  
 The reclamation of the North Yorkshire moors.
- FLETCHER, T. W., *Agricultural Economics Department, Manchester University*.  
 Lancashire agriculture, 1750-1850.  
 The Great Depression, 1873-96.
- FORSTER, GORDON C. F., *Department of Economics, Sheffield University*.  
 The progress of enclosure in Yorkshire, 1500-1850.
- FOX, Mrs H. M., 13 Park Road, Beckenham, Kent.  
 Anglo-Saxon agriculture (Cambridge Ph.D. thesis).
- FREEMAN, T. W., *Department of Geography, Manchester University*.  
 Pre-famine Ireland: a study in historical geography.
- FULLER, MARGARET D., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berks*.  
 West of England friendly societies in the eighteenth and nineteenth centuries with particular reference to their insignia.
- FUSSELL, G. E., 55 York Road, Sudbury, Suffolk.  
 The influence of the Low Countries on English farming.  
 The English dairy-farmer, 1500-1900.
- GAZLEY, Professor JOHN G., *Dartmouth College, New Hampshire, U.S.A.*  
 Sources for a biography of Arthur Young.
- GILES, B. D., *Department of Geography, Birmingham University*.  
 Land-use studies for certain Worcestershire parishes, based on enclosure-map and tithe-map evidence.
- GOULD, JOHN, *Department of Adult Education, University College of Leicester*.  
 The influence of fluctuations of harvest yields on the level of economic activity, sixteenth to eighteenth centuries.
- GRANT, Mrs B. F., 78 Twyford Avenue, London, W.3.  
 History of Wensleydale, Yorkshire.
- GREEN, GEORGE, *School of Agriculture, University of Nottingham, Sutton Bonington, near Loughborough, Leics*.  
 Leicestershire villages in settlement, expansion, and decay.
- GREENFIELD, Miss M., *S.W. Essex Technical College, Walthamstow, London, E. 17*.  
 Geographical development (including land utilization) of Essex coastal towns.

- GRIEVE, Miss H. E. P., *Essex Record Office, County Hall, Chelmsford*.  
Essex (1953) Flood Report including full treatment of its agricultural aspects, with introductory historical background.
- HABAKKUK, Professor H. J., *All Souls College, Oxford*.  
English aristocracy and gentry in the seventeenth and eighteenth centuries.
- HALLAM, H. E., 41 *Arthur Street, Loughborough, Leicestershire*.  
The medieval fenland.
- HALLAM, Mrs S. J., 41 *Arthur Street, Loughborough, Leicestershire*.  
The Romano-British fenland.
- HARRIS, A., *Department of Geography, Hull University*.  
Agricultural history, with particular reference to changes in land use, of the East Riding of Yorkshire, 1550-1850.  
A comparative study of the Vale of Pickering and the North Yorkshire moors.
- HENDERSON, H. C. K., *Department of Geography, Birkbeck College, London*.  
The 1801 crop returns.
- HIGGS, JOHN W. Y., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berks*.  
Farm implements and equipment.
- HILTON, RODNEY H., *School of History, Birmingham University*.  
English agrarian development in the later Middle Ages, with special reference to the West Midlands.
- HOPKINS, P. G. H., *Tutor-Organizer, Joint Committee for Adult Education, Southampton University*.  
The rise and fall of water-meadow irrigation in Britain.
- HOSKINS, W. G., *All Souls College, Oxford*.  
The Midland peasant.
- HUNT, T. J., *Orchard End, Pyrland, Taunton, Somerset*.  
History of the manor of Taunton in the thirteenth century, chiefly from the Pipe Rolls of the Bishopric of Winchester.
- JENKINS, J. G., *Museum of English Rural Life, 7 Shinfield Road, Reading, Berks*.  
Evolution and regional characteristics of the four-wheeled wagon.
- JOHN, A. H., *London School of Economics and Political Science, London, W.C.2*.  
The prices of animal products in England, 1700-1850.
- JOHNSON, J. H., *Department of Geography, University College, London*.  
The historical geography of County Londonderry in the nineteenth century.  
See also under BUCHANAN, R. H., JOHNSON, J. H., and PROUDFOOT, V. B.
- JOHNSON, S. A., *Department of Geography, Liverpool University*.  
Changing agricultural landscapes in Lindsey.
- JONES, Miss E. I. M., *Department of Geography, Bedford College, London*.  
The reclamation of the Bagshot Heaths.
- JONES, GLANVILLE R. J., *Department of Geography, Leeds University*.  
Land settlement, tenure, and utilization in the Conway-Clwyd district of North Wales. A study of the transition from feudo-tribal to modern forms of land tenure (Leeds Ph.D. thesis).  
The agrarian history of North-West Yorkshire.
- KENYON, G. H., *Iron Pear Tree Farm, Kirdford, near Billingshurst, Sussex*.  
Farming from c. 1600 on the Weald Clay of Sussex.



- KERNTHALER, E. A., 84 *Bramley Way, Ashted, Surrey*.  
Farm rents and the size of properties in Surrey (Ph.D. thesis).
- KERRIDGE, ERIC, *Department of Economics, Liverpool University*.  
English agrarian history in the sixteenth and seventeenth centuries.
- KINVIG, Professor R. H., *Department of Geography, Birmingham University*.  
Agricultural geography of the West Midlands.
- KOERNER, R. M., *Department of Geography, Sheffield University*.  
Recent changes in land-use in the South Yorkshire coalfield.
- LANGTON, Miss E., *Department of Geography, Bedford College, London*.  
Reclamation of the heath and common of the Cromer moraine.
- LAWTON, R., *Department of Geography, Liverpool University*.  
Studies in population migration from rural to urban areas.
- LONG, W. HARWOOD, *Department of Agriculture, Leeds University*.  
Yorkshire farming in the sixteenth and seventeenth centuries.
- MACPHERSON, ARCHIBALD, *Department of Geography, Aberdeen University*.  
Afforestation and agriculture in the Dee valley.
- MCCORD, NORMAN, *Trinity College, Oxford*.  
The activities and organization of the Anti-Corn Law League, 1838-46 (Cambridge Ph.D. thesis).
- MCGREGOR, O. R., *Department of Social Studies, Bedford College, London*.  
History of modern British agriculture and rural society, 1800 to the present day.  
English land tenure and agricultural progress, 1832-83.  
Finance of land drainage in the nineteenth century.
- MARTIN, J. M., *School of History, Birmingham University*.  
Changes in land ownership, land utilization, and agricultural income, 1785-1825 (M. Comm. thesis).
- MATHIAS, PETER, *Queen's College, Cambridge*.  
The brewing industry in the eighteenth century: barley, hops, and malt.
- METCALFE, BRIAN, *Department of Geography, Leeds University*.  
Geographical aspects of the reclamation and development of Hatfield Chase (Leeds M.A. thesis).
- MILLER, Professor A. AUSTIN and WOOD, P., *Department of Geography, Reading University*.  
The mapping of strip lynchets.
- MILLS, DENNIS R., *Department of Geography, Nottingham University*.  
Land use and settlement in Kesteven, c. 1700-c. 1850 (Nottingham M.A. thesis).
- MINCHINTON, W. E., *Department of History, University College of Swansea*.  
The 1795 and 1800 crop returns for Wales.  
The 1797 livestock returns for Dorset.
- MINTON, Miss J. G., *Fairbourne, Rose Valley, Brentwood, Essex*.  
Some aspects of the agricultural geography of Mid-Essex (London M.Sc. thesis).
- MONTEITH, Mrs D., 62 *High Street, Saffron Walden, Essex*.  
Settlement and field patterns in N.W. Essex, eleventh to twentieth centuries.
- MOORE, D. C., *Trinity College, Cambridge*.  
The position of the English farmer in its economic, social, and political aspects. c. 1850-75.

- NEWLYN, Miss ANNE, *Department of Agricultural Economics, Reading University*.  
The village and manor of Coleshill (Berkshire), 1500-1700.
- OLDFIELD, F., 85 *Anchorsholme Lane, Blackpool, Lancs.*  
Reclamation of Mossland.
- OSCHINSKY, DOROTHEA, *Department of History, Liverpool University*.  
Didactic literature on estate management and farming in the Middle Ages.
- PAWSON, Professor H. C., *University School of Agriculture, The Quadrangle, King's College, Newcastle-upon-Tyne*.  
The life and work of Robert Bakewell of Dishley, 1726-95.
- PELHAM, R. A., *The Court House, West Meon, Hants*.  
Agricultural geography of the fourteenth and eighteenth centuries.
- PERKIN, H. J., *Manchester University*.  
The income and estates of the nobility in 1700-50.
- POSTAN, Professor M. M., *Peterhouse, Cambridge*.  
The agrarian economy in the Middle Ages.
- PRINCE, H. C., *Department of Geography, University College, London*.  
Parkland in England since 1550.
- PROUDFOOT, V. B., *see* BUCHANAN, R. H.
- RAEBURN, JOHN R., *London School of Economics and Political Science, London, W.C.2*.  
Responses of British agriculture to price and cost changes since 1870.
- REID, F. M., *Agricultural Economics Research Institute, Oxford*.  
Economic and social aspects of landownership in the nineteenth century (Oxford B.Litt. thesis).
- REVILL, S., 85 *Bedale Road, Nottingham*.  
Fourteenth-century court roll of Mansfield, Notts.
- REYNOLDS, B., *Institute of Historical Research, Senate House, London, W.C.1*.  
The late medieval geography of Dorset (London M.A. thesis).
- RHYS-RANKIN, Capt. Sir HUGH, F.S.A. (Scot.), M.R.I., *Green Lane, Bryngwyn, via Kington, Herefordshire*.  
Welsh cattle droving during the turnpike area from west and central Wales to England.
- ROBSON, R., *Trinity College, Cambridge*.  
The country attorney in the eighteenth century.
- ROWE, JOHN, *Department of Modern History, Liverpool University*.  
Cornish agricultural history in the nineteenth century.
- SHAW, DAVID H., 28 *Brantwood Road, Luton, Beds*.  
Surviving dialect in six villages in south Bedfordshire.
- SHEPPARD, JUNE, *Department of Geography, Queen Mary College, London*.  
Historico-geographical study of the draining of the marshlands of East Yorkshire.
- SHORTER, A. H., *Department of Geography, University of Exeter*.  
Field patterns in England.
- SIMPSON, E. S., *Department of Geography, Liverpool University*.  
The nineteenth-century agrarian history of the Cheshire dairying region.  
Agrarian development in the Wem district of north Shropshire.
- SMEE, Miss D. K., *Department of Geography, Bedford College, London*.  
Soil and slope, and ridge and furrow in a Northamptonshire parish.

- STITT, F. B., *Staffordshire County Record Office, County Offices, Stafford*.  
Some medieval accounts of Lenton Priory.
- STURMAN, Mother MARY WINIFRIDE, O.S.U., *St Angela's Ursuline Convent, Forest Gate, London, E.7*.  
Administration of the Barking Abbey estates (London Ph.D. thesis).
- SYLVESTER, Miss DOROTHY, *Department of Geography, Manchester University*.  
The rural landscape of the Welsh Borderland.  
Open field in Cheshire.
- TAVENER, L. E., *Department of Geography, Southampton University*.  
A survey of the commons in Hampshire in connection with the Royal Commission on Common Lands.
- THIRSK, Mrs JOAN, *Department of English Local History, University College of Leicester*.  
Lincolnshire agrarian history, 1540-1914.
- THOMPSON, F. M. L., *Department of History, University College, London*.  
Nineteenth-century English landed estates.  
Wiltshire agriculture, 1870-1955.
- THORPE, H., *Department of Geography, Birmingham University*.  
Studies of settlement and land-use in the Arden and Feldon regions of Warwickshire.  
A detailed study of the changing landscape in the Warwickshire parish of Chesterton, depopulated in the fifteenth century.
- VOLLANS, Miss ELEANOR C., *Department of Geography, Bedford College, London*.  
Agriculture in the Chilterns in the late Middle Ages.
- VOSE, E. K., *School of History, Birmingham University*.  
The administration and economic development of the estates of Worcester Priory (Ph.D. thesis).
- WALKER, Miss F. R., *Agricultural Economics Department, Manchester University*.  
Home produce and imported supplies of food since 1820.
- WATTS, D. G., 484 *Downham Way, Bromley, Kent*.  
Agrarian life on the estates of Titchfield Abbey, Hants (Oxford B.Litt. thesis).
- WESTCOTT, Miss MARGARET R., 96 *East Street, South Molton, Devon*.  
The estates of the Courtenay family in the late fifteenth and early sixteenth centuries (Exeter M.A. thesis).
- WILSON, C. P. H., *Peddar's Way, East Wretham, Thetford, Norfolk*.  
A short history of the peach, and a treatise on its cultivation as a bush tree in the orchard and garden, together with an anthology.
- WOOD, P., see MILLER, Professor A. AUSTIN.

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#### NOTES AND COMMENTS (continued from page 107)

down by the grandson of the founder, the present Honorary Director, Mr W. H. Curtis, in a recently published booklet.

The Museum started life as an appendage of the old Alton Mechanics Institute. It began mainly as a natural history collection, but gradually grew to be a very representative

local museum. We may look with gratitude to the foresight of those in charge in recent years who foresaw the need to collect agricultural exhibits. Thanks to them, Alton possesses a splendid collection of agricultural material, among the best in the country today.

## Letters to the Editor

MR GOULD AND MR BERESFORD

SIR,—Mr Gould deserves your readers' gratitude for his stimulating critique of Mr Beresford's book on deserted villages. But I should like to mention some further points which may be worth considering.

Mr Gould's point that the prices of corn in the area serving London were relatively high in the late sixteenth century is a very good one. It certainly affects any index, such as Mr Bowden's, constructed from Thorold Rogers's figures. But Mr Kneisel has suggested that the "price leadership of London (the Lower Thames Area)" probably goes back to 1411 (*Journ. Econ. Hist.*, xiv, pp. 246 ff.). Unless Mr Gould can show that the differentials were greater in the late sixteenth century, it would seem better for the time being to rely on his arguments concerning the difficulty of transport. Buckinghamshire and Oxfordshire were the subject of complaints about conversion from arable to pasture after 1550, although they were in the London market area.

Mr Gould's arguments, based on the rate of conversion at different periods calculated from the returns of the commissions of depopulation, lose their force now that Dr Kerridge has demonstrated how fallible a guide to actual conversion the returns are (*English Historical Review*, LXX, 1955, pp. 212 ff.). None the less we can say in a general way that conversion was still a problem at the end of the sixteenth century, though it attracted public attention in the 1590's partly because of a run of bad harvests.

All arguments, but especially those of Mr Beresford, based on Mr Bowden's index of wool prices, should be treated with great caution, since there are unfortunately strong reasons for thinking that it is not reliable as a measure of long-term changes. The reasons for this view are set out in a note by my colleague Mr J. F. Wright (*Yorkshire Bulletin of Economic and Social Research*, vii, pp. 156-8). Mr Bowden's index has some value as a local

index of the price of Durham wool, but even here its usefulness is limited by the fact that there are no quotations for that wool for the crucial years 1540-82. Thus Mr Gould's scepticism about Mr Beresford's deductions is amply justified. Mr Beresford's attempt to discover the incentives to enclosure in the Midlands by comparing metropolitan grain prices with an incomplete index of Durham wool prices has little to recommend it.

We still urgently need a full index of sixteenth-century wool prices. Ideally there should be several: one for each of the main wool-producing areas. For it may be that the demand for different types of wool varied during the century. For instance, did the growth of the new draperies increase the demand for Midland wool? Unwin tells us that the new draperies in Suffolk used long coarse wool. This is the type of wool that one might expect to be produced on the converted pastures of the Midlands. An index of meat prices would also be of great assistance, as would be some study of the relative profits to be made out of meat and wool at different periods in the history of Midland sheep-farming.

Yours truly,

J. P. COOPER

*Trinity College,  
Oxford.*

### BALKS IN OPEN FIELDS

SIR,—I write concerning Miss Beecham's 'Review of Balks as Strip Boundaries in the Open Fields' (*ante*, pp. 22-44) which refers to my 'Reconsideration of Some Former Husbandry Practices' (*ante*, iii, 1955).

Miss Beecham's accusation (pp. 29, 35, 39) that I said balks were made in order to divide and bound the "strips" in all common fields throughout the Midland Plain is false. What I said (pp. 37-9) was, that even in the Midland Plain, as elsewhere, there were, in many of the common fields, but by no means in all, balks that divided and bounded the various

properties and occupations, and that, although there were some other reasons for these balks, not all of which could yet be determined, the division of dispersed parcels of land was one of their main objects. Her accusation (pp. 27-9) that I confusedly endowed the fixed mould-board plough with the properties of a one-way plough is also false. Her accusation that I denied the existence of ridges is likewise false. Her accusation that I was guilty of "land-strip identification" (pp. 26, 29) is equally false. In all these instances Miss Beecham does not contradict me, but only words that she puts into my mouth, and therefore a simple traverse is answer enough.

Miss Beecham also quarrels with my use of evidence. She attempts to debar all circumstantial evidence, even when used only in support of direct evidence, and to debar reasonable inference from the evidence. Not content with this, she would like to rule out evidence where the subject is not literally mentioned, but where there is merely a verbal difference. Furthermore, she would like to debar the general statement that comprehends the particular, merely because the particular is not literally included, and to debar the general even when used only to support particular evidence. For example, if when reading Venn's *Foundations of Agricultural Economics* Miss Beecham perused p. 32, she must have seen that I based myself on reasonable inference. Again, if it was generally forbidden to plough up greensward in the common fields, then balks of all sorts were included in this prohibition unless specifically exempted. Nevertheless, although Miss Beecham objects to reasonable inference, she herself places an unreasonable construction upon the deposition of William Harrowden (p. 36).

Lastly, Miss Beecham objects to an item of transcription, while herself mistranscribing "kare" for "eare" (p. 38); and makes a great show of not being able to trace some references, while she herself reproduces my references incorrectly (for example, p. 33, notes 2 and 5).

I have no wish to contradict Miss Beecham's argument, and to do so would be a work of supererogation, for it is self-contradictory, since in seeking to deny the existence of boundary balks, it brings forward additional evidence of their existence.

Yours faithfully,

ERIC KERRIDGE

*University of Liverpool.*

#### RIDGE AND FURROW

SIR,—Agriculturists will have followed with interest the lively discussions on the historical significance of ridge and furrow. Much, if not most, of the heavy clayland that was ploughed from old pasture in the war years in Warwickshire had been 'landed up' in ridge and furrow when previously in cultivation. When it was ploughed, lack of proper drainage and attacks from wireworm were the two most common causes of crop failure, but serious phosphate deficiency was also a cause of poor yields. The very fact that many fields were in deep ridge and furrow, however, created problems which had to be overcome when they were cultivated with modern farm machinery.

The first necessity, or so it seemed, was to get the fields as level as possible. This was done by opening up new furrows on the tops of the ridges and ploughing 'downhill', so filling the old furrows. This never levelled the field at the first ploughing, but it reduced the depth of the old furrows and the height of the ridges.

Levelling out in this manner created its own difficulties. The fertile top soil was ploughed off the crown of the ridge to fill the furrow and a band of lighter coloured subsoil denoted where the tops of the ridges had formerly been. Crops along these bands were poor, but cereals often 'lodged' or went flat in strips each side where the crop was growing in a good depth of fertile soil, some of which had been ploughed off the crowns of the ridges. There was also a physical as well as a chemical effect, as the bands of lighter coloured soil were sometimes found to be less amenable to cultivation than the remainder of



the field. With some years of rotational cropping these features of old ridge and furrow became less apparent, although the bands of light soil where the ridges had been can still be seen on many fields. Fertility tends to level up over the field as a whole, but the unkind physical nature of the raw subsoil persists.

Drainage was another problem that arose when the fields were levelled in the manner described above. Whatever the condition or extent of the underdrainage system, surface drainage on heavy clay fields is desirable if not essential. Water percolates but slowly through clay, and often heavy rain lies on the surface for some time. If a crop is on the ground the results of surface waterlogging can be serious. When a field is in ridge and furrow the surface water is led off along the bottom of the furrow and a channel should be made from it across the headland to the ditch.

In many cases to make cultivation easier with modern implements, but at the same time to give some degree of surface drainage, it has been found necessary in practice to land a field up again in wider ridges with furrows further apart. On the other hand, some farmers never threw down the old ridge completely for the above reasons. It is not uncommon still to find fields that are ploughed in two or even more different directions following the slope of the ground and the old ridge and furrow. This perhaps emphasizes the important part that the ancient practice played in providing surface drainage.

Yours, etc.

A. M. A. WOODS

#### WEALD CLAY HUSBANDRY

SIR,—As a farmer with an interest in farming history, may I welcome most heartily the bold and fascinating project of an Agrarian History of England following quickly on the birth of the Agricultural History Society and its excellent REVIEW? It is opportune, and there is some tidying up to be done after a generation of writers who, too often, were content to haver over the niceties of legal tenure, to copy the old myths, and to ignore the interesting

problems of how the wheels went round. They and some of their successors seem to forget that our forefathers, given a chance, were sensible men provident in their husbandry; they had to be, or starve.

Today, judging by our REVIEW, things have changed very much for the better; but has not the glorification of the trivial been transferred from legal tenure to ploughmanship, and are we not in danger of creating more myths and mountainous barks by academic hair-splitting on this subject, for our unfortunate successors to clear away before they can start on any useful work? Further, have not too many earlier hack writers, cranks, and failed farmers been swallowed whole and endlessly copied, while a great deal of original material awaits critical analysis?

Having fired that broadside, I propose to increase the mountain by a few inches. This Weald Clay district was, apart from a small percentage of common waste and an occasional hunting park, enclosed by its earliest settlers nibbling their way into the forest field by tiny field. Field shape here was determined by the lie of the land, the numerous small streams, and the need to facilitate drainage and prevent erosion. Strange ploughing practices or covered-wagon-sized plough-teams probably played no part. If an aerial photograph could have been made of the district only forty-two years ago it would have shown very clearly some thousands of acres of ridge and furrow. The fields simply tumbled down to bad pasture, untouched and unlevelled, in ridges usually a rod wide, some a foot or so high and rounded, some flat, depending, like much else in husbandry, on the individual farmer's whim, the season, and the needs of individual fields. There is no mystery, no obscure interest, only the wise universal practice of local heavy-land husbandry, just that and nothing more. Probably practised during the preceding thousand years as the Weald Clay was gradually cleared, it was simply the best way to get results on this difficult but not unproductive land with very limited equipment and thus precariously few

days for the yearly round of cultivations. The practice of ridge and furrow, here 'land' and 'vor', most certainly did not go out with the advent of tile draining. Here tiles were something of a luxury to tidy up springy spots, and to supplement, not replace, the land-ing up.

All of which, to an amateur, seems to emphasize the difficulty of writing about the husbandry side of agrarian history except on a regional basis.

Yours truly,

G. H. KENYON

Kirdford,  
W. Sussex.

#### THE RABBIT IN ENGLAND

SIR,—Your correspondent Mr Ridler may be interested in the article by Colin Matheson on 'The Rabbit and the Hare in Wales' in *Antiquity*, xv, 1941, p. 371. The author says however that there is "no satisfactory evidence" of the rabbit's existence in England before the thirteenth century, the oldest written reference known to him being a deed among the Exeter city muniments, undated but before 1234. The charter of 1176 is presumably a recent discovery?

Yours faithfully,

A. E. B. OWEN

2 Fellows Road,  
Hampstead, London, N.W.3

[The charter of 1176 was printed in the *English Historical Review*, LXII, 1947, p. 365.—ED.]

#### NATIONAL NATURE RESERVES

SIR,—At the suggestion of Mr E. M. Nicholson, the Director-General of the Nature Conservancy, I am writing to ask if any members of your Society would like to collaborate in the study of prehistoric farm sites on National Nature Reserves.

The Nature Conservancy is not officially concerned with archaeology, and the National Nature Reserves are selected as being of great biological interest. Yet it so happens that some Nature Reserves, especially those on the chalk in the south of England, have great archaeological interest in showing the pattern of former settlement and cultivation. For example, the Nature Reserve at Lullington near Eastbourne is covered with a pattern of Celtic fields and is illustrated under the name Fore Down, Lullington, on page 212 of *The Archaeology of Sussex* by E. C. Curwen. The Kingley Vale Nature Reserve near Chichester, preserved on account of the fine old yew trees, comprises a farm site, probably of the Late Bronze Age, where a perforated vessel which may have been used in cheese-making was found. The Reserve on Fyfield Down in Wiltshire shows terracing for cultivation with Sarsen stones in places arranged to hold up the soil. On nearby Overton Down air photographs have shown the 'lands' of ancient ploughing (Crawford and Keiller, *Wessex from the Air*, p. 124).

It seems probable that the present vegetation on many of the Downs may be explained by their cultivation in the past, and that the study of the differences, both in plants and in soils, must not neglect the past agricultural history of the areas. There should be a fruitful field for collaboration between the archaeologist, the agricultural historian, the botanist, and the soil chemist.

Yours faithfully,

A. S. THOMAS

*The Nature Conservancy,*  
19 Belgrave Square,  
London, S.W.1.

[It is suggested that anybody interested in Dr Thomas's project should write in the first instance to the Secretary of the British Agricultural History Society.—ED.]

## Book Reviews

DAVID WILLIAMS, *The Rebecca Riots*. Cardiff, University of Wales Press, 1955. viii+378 pp. 25s.

This is a book which should be read by all those interested in the history of agriculture. It is a pity, therefore, that Professor Williams has chosen to call it *The Rebecca Riots*; his sub-title, 'A study in agrarian discontent', gives a far clearer impression of what the book is about and would perhaps find for it a wider public. It is true that it might be argued that the very purpose of the book is to tell something of the mysterious outburst of rioting which stole across areas of south-west Wales in 1839 and 1842, but in fact only three of the ten chapters are devoted to a direct discussion of the riots. The remaining seven give a lucid and penetrating picture of the social, economic, and agricultural background of the times.

The great virtue of *The Rebecca Riots* is that it provides an important and carefully prepared study of a community during the critical years when industrial Britain was arising and submerging rural Britain. Professor Williams has achieved this in a very readable manner and with an unerring eye for detail. He shows us clearly the suffering and sadness that characterized the life of the Welsh peasant, for Wales unlike England still had her peasantry in these fateful years.

In his description of the farming of the area he mentions many points of interest, and among them are several unusual survivals of custom and tenure: for example, the survival of food rents on a Cardiganshire farm in 1833, and the carting of turf and lime for the owner. Many other sidelights are shed on agricultural affairs. It is, for instance, of interest to learn that the first county agricultural society in Britain was founded in Brecknock in 1755.

At a time when agricultural historians are very conscious of the dangers of generalizing about agricultural conditions at any given period, the book comes as a timely reminder that farming in many parts of these islands

has never conformed to what has become the accepted norm. For example, Professor Williams is wise to remind us that the Tithe Commutation Act of 1836, which did so much to allay ill feeling about tithes in many parts of the country, actually increased the tithes of south Wales by 7 per cent.

One criticism which should be made is that no map of the area is provided. It is true that there are a number of maps showing the various road trusts, but although these may be sufficient for the Welsh reader they are totally inadequate for others. In order to follow many of the references a large map of the area is indispensable. It is also unfortunate that Professor Williams insists on referring to west Wales as the general area of the Rebecca risings; in fact the risings were geographically rather restricted, and many of his generalizations lead the reader to believe that they were wider in scope.

The description of the activities of the Rebecca rioters is stimulating. As each toll-gate is attacked Professor Williams is at pains to find reason and cause, and as he does so he leads us along exciting paths—even to secret midnight meetings attended by, of all people, the special correspondent of *The Times*. He takes us with vivid colour to the actual scenes of rioting and draws thumbnail sketches of the characters present with a freshness which makes it difficult to believe that he was not there. All the time we expect, over the page, or as the case may be at the next toll-gate, to be told directly who Rebecca was and why she acted as she did, but as the book draws to a close we are disappointed. Always on the brink of revelation, the author withdraws and in effect says: this is what happened, draw your own conclusions if you can! With his detailed knowledge of the Riots it seems surprising that Professor Williams does not know more of the answers. Time and again one senses a degree of reticence which suggests that he knows more than he will tell. It may indeed be that over

a hundred years afterwards the secrets of Rebecca have died with those who created her, either on the small farms in Australia to which they made their way after deportation, or in the remote hills of the west. But we must not discount the possibility, and it is pleasing to believe, that the secret is carried by all true Welshmen still. It would at least explain why the book concludes somewhat unsatisfactorily and why we are left with many questions and few answers. Perhaps Wales is still for the Welsh and Professor Williams will no more turn traitor now than his ancestors to whom the book is dedicated, the sons and daughters of Rebecca.

J. W. Y. HIGGS

*The Making of the English Landscape: Cornwall*, by W. G. V. BALCHIN (1954); *Gloucestershire*, by H. P. R. FINBERG (1955); *Lancashire*, by ROY MILLWARD (1955). Hodder & Stoughton. 16s. each.

These are the first three volumes of a series surveying the whole of England by counties, under the general editorship of Dr W. G. Hoskins. The object of the survey is to study the mutual influence and interaction of Man and Nature in producing the landscape, using that word in its widest sense, of England. Proverbially "God made the country, and man made the towns;" but the country as we see it is nearly as much man-made as the towns. Of Lancashire we are here told: "Above Coniston the Borrowdale Volcanics form the mountain group of Wetherham and the Old Man. . . On these few acres of true mountain summit one reaches the only natural landscape in the county apart from the coastal strips of empty saltmarsh and mudflats." Similarly in Gloucestershire: "Forty centuries of human handiwork have left their imprint on the face of the land, and marked it so deeply that it would be difficult now to find twenty acres together which remain in their natural state." In both counties the forests, far from being primeval, have been formed by comparatively recent planting; new hills have been built up with the waste from mines; the 'pool' of Liverpool has

been filled and built upon, Martin Mere has been drained, but by way of compensation the subsidence of mined land has produced new lakes, or 'flashes'. The stubborn soil of Cornwall has been slightly more successful in repelling human attacks; but here too mines and quarries of slate, granite, and china-clay have made new valleys and hills.

Of the three counties Cornwall alone is a natural unit; Gloucestershire is a Saxon creation with arbitrary boundaries; Lancashire is a territorial amalgamation of Norman times. In Cornwall emphasis is on the pre-historic periods, and groups of small fields have in places remained unchanged from Celtic times, and for the most part the settlements were isolated farms and hamlets. Here Rome left little mark; but in Gloucestershire the Romans built roads and forts, towns and country houses, particularly in the Cotswolds. This civilization fell before the Saxon invaders, who occupied the whole district, but the towns survived, or revived. In Lancashire neither Celt nor Roman left much mark on the landscape; Saxons and Angles, and Scandinavian invaders from Ireland, settled the district but sparsely, gradually clearing the forest, but it was not until the sixteenth century that industry began to set its stamp seriously upon the scenery of the county. It was the Industrial Revolution that completed the stamping. "As sure as God's in Gloucestershire," Mammon was in Lancashire, and if wool had produced Chipping Campden cotton produced Oldham.

These monographs make fascinating reading; to learn of the development of the country scenes—the clearance of the woods to form open fields (*Gloucestershire*, p. 65), and the enclosure of these fields and their conversion to pasture for the all-important sheep. One sees the great country houses, such as Badminton, starting with formal gardens, which in turn were ravaged by a change of fashion for the naturalistic grounds of 'Capability' Brown, while the native Cotswold architecture gave way in the new spa of Cheltenham to classic, in less fortunate

towns to 'Gothic Revival', and in Gloucester to hugger-mugger. One can trace the development of the roads, the rise and fall of the canals, and later see how "Romance brought up the 9.15" over Chat Moss, or across the viaducts of Cornwall or the Severn Bridge. The books are lavishly illustrated with maps and relevant views; and it is some satisfaction that in the two later volumes these views are distinctly better reproduced than in *Cornwall*, where they tend to be muddy almost to invisibility.

L. F. SALZMAN

KEITH A. H. MURRAY, *History of the Second World War: Agriculture*. London: Her Majesty's Stationery Office, and Longmans, Green, & Co., 1955. xii + 422 pp. 30s. This further volume in the Civil Series of histories of the Second World War fully maintains the high standard set by its predecessors. It possesses all the qualities one would expect to find in such a work, coming from the pen of so distinguished an economist and administrator, particularly when based—as its author generously acknowledges—on the preliminary research carried out by Miss Edith Whetham, Gilbey Lecturer at Cambridge University.

The achievements of British agriculture during the war are well enough known in broad outline. Here for the first time the detailed narrative of that achievement is presented against the background of war strategy and national planning. We are shown the failures as well as the accomplishment. Thus, milk supplies were not always fully maintained. The price policy adopted was unnecessarily extravagant and gave some producers too high profits. The machinery for formulating policy creaked a little in the early war years. But the author can rightly claim that the performance was "successful far beyond the calculations and estimates of the pre-war planners" in spite of the fact that the war took a much more difficult course than was ever anticipated. Who, in 1939, could have forecast, for example, that within less than a year this country would be cut off

from nearly all European sources of food, and within little more than two years also from its Far Eastern supplies of such staple foods as sugar and oilseeds?

The book falls into four parts, the first three of which are mainly narrative while the last critically reviews what was done and achieved. Many readers will find this last section of greatest interest. The narrative sections, so far as the war-time period is concerned, are divided into chapters on a yearly basis, each chapter following a uniform plan. After describing the state of the food supply in each year, the author shows how the home production programme was worked out in the light of imports, and then proceeds to recount the measures taken to implement that programme through such means as price control, regulation of raw materials, labour supplies, and so on. Though the arrangement is logical, this method of treatment does perhaps tend to become a little monotonous by the time the last year of war is reached.

The student of Government administration will find much of interest in the account, given in Chapter XII, of the evolution of machinery for co-ordinating the formulation and execution of policy. It will be no surprise to most people that there were sometimes differences of view on important issues between the various Departments concerned, especially in the earlier years. On price policy, for example, the Ministry of Food took the view that prices should be increased for those commodities whose production it was desired to encourage, while others might be positively discouraged through price reductions. The Ministry of Agriculture, on the other hand, favoured all-round price increases and reliance on methods such as persuasion or direction to secure the type of production required. Again, the Ministry of Food would undoubtedly have taken a rather tougher line with farmers both in limiting livestock numbers in the light of the much reduced supplies of feeding-stuffs and in taking control, for human consumption, of coarse grain supplies grown for livestock feeding. The view of the Ministry of Agriculture prevailed



in all these matters, and whatever the logical merits of the case it can at least be argued that the decisions made helped to retain the full co-operation of the farming industry, without which the food production campaign could not have succeeded.

Of the war-time developments which have become more or less permanent features of the agricultural scene, the economist tends to focus his attention upon the policy of guaranteed prices and its attendant problem of maintaining an adequate level of economic efficiency. The agricultural historian, however, may well think that the most important permanent results of the war for British farming are the changes in technique which it stimulated, e.g. the greatly increased use of fertilizers, the improvement of grassland husbandry, and the mechanical revolution, none of which, it is probably true to say, would have proceeded so far or so fast under normal peace-time conditions.

C. H. BLAGBURN

*Ulster Folklife*. Issued by the Committee on Ulster Folklife and Traditions. Belfast, 1955. 56 pp. and 6 plates. Subscription 5s. 6d.

This well-produced first issue of *Ulster Folklife* is an introduction to the work and activities of a committee established in 1952 to survey the folk way of life in Northern Ireland.

Folklore is dealt with in three papers. The first, on the vexed question of definitions and methods, is a restatement of what is already known amongst experts, but the subject is

given a new emphasis in this clear and well balanced account. The second points out the pitfalls to be avoided in the regional collection of folklore, and the third discusses Harvest-knots and Brigid's Crosses. The suggestion here that the cult of the saint is in some way connected with the harvest, is new.

Perhaps the most original and individual contribution is that on the people of the Irish 'forths' or primitive farmsteads. The skilful handling of the evidence presents a convincing picture of the successive stages in Irish rural economy. A concise and valuable survey of the typical small Ulster farmhouse follows. The next paper discusses the influence of topography, roads, and a local economy based on subsistence agriculture, in relation to farm vehicles. The Irish slide-car, essentially a cart without wheels, dates from the Bronze Age and is still found in some remote hilly areas. Various reasons are given for its continued use, but surely the cost ("in 1802 slide-cars cost 3s. 9½d. . . . wheel cars, £4 4s.") and simplicity were the main contributing factors.

Agrarian historians are well served by the study of place names. In *The Legends of Place Names* the folklorist and social historian are offered a careful and thorough study of the mythological and pseudo-historical elements in the legends.

The paper *Ordnance Survey Memoirs* is little more than a catalogue of short and unrelated snippets. Finally, in *Notes on the Parish of Carrnoney*, a third of the material, on churches, schools, and transport, is interesting. The remainder is made up of stereotyped tales of witches and fairies.

T. D. DAVIDSON

## NOTES ON CONTRIBUTORS

Mrs Margaret Davies, M.A., Ph.D., F.S.A., was formerly a Lecturer in Geography in the University of Manchester. She has published *Wales in Maps* and papers on the prehistory and field systems of Wales.

Cyril Tyler, B.Sc., Ph.D., F.R.I.C., is Professor and Head of the Department of

Agricultural Chemistry in the University of Reading.

G. E. Mingay, a graduate of Nottingham University, is Lecturer in Economics and Economic History at Woolwich Polytechnic. He is making a special study of agrarian trends in the eighteenth century.

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